COURSES

Explanation of Course Catalog

The Course Catalog includes details of all courses approved for offering by Oklahoma State University. Not all courses are offered each semester or session. Students should consult the current class schedule to determine specific offerings for a selected term.

Courses are listed alphabetically by course subject.

A course catalog listing is comprised of the following elements:

Course Subject. The course subject code is comprised of no more than four letters representing the home department or course subject area.

Course Number. All courses are identified by numbers composed of four digits. The first digit indicates the class year in which the subject is ordinarily taken, although enrollment is not exclusive to student classification (1 – freshman, 2 – sophomore, 3 – junior, 4 – senior, 5 and 6 – graduate, 7 – professional veterinary medicine). Some courses are approved for multiple levels of credit. Course numbers beginning with 0 indicate developmental courses that do not carry University credit. The last digit of the course number indicates the number of semester credit hours. Course numbers ending with 0 indicate a variable credit course.

Course Title. The title of the course.

General Education Requirement Codes. The capital letters in parentheses in some course titles designate courses fulfilling various undergraduate general education requirements. (See University Academic Regulation 3.4.) General education credit is also identified in the course attributes. The code letters designate the general education category for which the course may be used:

D—Diversity
F—Expression Through Fine Arts and Languages
G—Global Cultural Competency
H—Understanding Humanities-Human Heritage & Cultures
L—Laboratory-Based Inquiry
N—Reasoning in the Natural Sciences
Q—Quantitative Thought & Logical Reasoning
S—Exploring Society and Human Behavior

Prerequisite(s). Prerequisite courses, exam scores, or other requirements prior to enrollment are listed in detail (See Academic Regulation 5.6.).

Description. The content of the course and its major emphasis are described.

Credit hours. The number of semester credit hours associated with the course. Courses with course numbers ending in zero are offered for variable credit. Typical variable credit entries are 1-6 credits, maximum 6, and 1-3 credits, maximum 12. The first part of the entry indicates the permissible credit per enrollment, followed by a statement of the cumulative maximum credit which may be earned in the course through repeated enrollment. A semester credit hour is equivalent to (a) sixteen 50-minute class sessions (including examinations) conducted under the guidance of a qualified instructor plus 32 hours of preparation time, or (b) sixteen 3-hour laboratory sessions, or (c) sixteen 2-hour laboratory sessions plus 16 hours of preparation time. These same equivalencies apply to outreach courses, short courses and other learning formats for which academic credit is awarded (University Academic Regulation 4.8).

Contact hours. The actual amount of time per week a student will spend in class (based on a 16-week semester).

Levels. The level indicates whether the course can be offered at the Undergraduate, Graduate, or Professional level. Some courses are approved to be offered at more than one level.

Schedule types. The type of instruction: Lecture/Theory; Lab; Discussion; Independent Study.

Department/School. The department or school offering the course.

General Education and Other Course Attributes. Course attributes reflect attributes that all sections of the course carry toward meeting specific degree requirements. For example, all general education credit designations are listed as course attributes.

Equivalent Courses. Some courses are academically identical or equivalent to other courses that are offered in different departments. Equivalent courses should include "same as..." statements in their course descriptions. Equivalent courses are denoted on the official transcript in accordance with the undergraduate repeat policy (See Academic Regulation 6.13). Credit for only one of the courses will count in the earned hours section of the transcript.

Mutually Exclusive Courses. Courses that are not identical/equivalent but contain similar or significantly overlapping content include "no credit for..." or "may not be used with..." statements in their course descriptions. Mutually exclusive (or overlapping) courses are not listed as repeats, but students may not apply credit for both courses toward a degree. For example, if the description for Course X indicates "No credit for students with credit in Course Y" or "May not be used for degree credit with Course Y," this means that a student may not use both courses to meet requirements for a single degree program. The student may use either Course X or Course Y, regardless of the order in which the courses were completed, but both courses may not be used to fulfill requirements for a single degree program. Thus, once a course is applied to a degree program, the mutually exclusive course may not be used to fulfill requirements for that program, including major hours, elective hours, total hours, etc.

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Accounting (ACCT)

ACCT 1012 Introductory Accounting and Finance for Tribal Entities
Description: This course introduces the fundamentals of tribal finance, accounting, and legal frameworks with an emphasis on federal Indian law, auditing, compliance, ethics, and grant management. Participants will develop professional competencies in tribal government financial reporting, cost principles, indirect cost rate negotiation, and the SEFA schedule. Designed for entry-level professionals, the program provides both technical knowledge and applied learning opportunities to support tribes in building sustainable financial and administrative practices.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 2003 Survey of Accounting
Prerequisites: 3 hours of MATH or STAT with 'Q' designation.
Description: Introduction to financial and managerial accounting concepts and objectives. May not be used for degree credit with ACCT 2103 and ACCT 2203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 2103 Financial Accounting
Prerequisites: 24 semester credit hours, including ENGL 1113 and MATH 1483 or equivalent.
Description: Financial accounting concepts and the use of financial accounting information in decision-making. May not be used for degree credit with ACCT 2003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 2203 Managerial Accounting
Prerequisites: ACCT 2103.
Description: Managerial accounting concepts and objectives, planning and control of sales and costs, analysis of costs and profits. May not be used for degree credit with ACCT 2003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 3001 Practicum in Professional Accounting I
Prerequisites: ACCT 2003 with a grade of "C" or better or both ACCT 2103 and ACCT 2203 with a grade of "C" or better.
Description: Study of current and emerging issues in the accounting profession. Graded on a pass-fail basis.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 3003 Foundational Accounting Skills
Prerequisites: ACCT 2003 with a grade of "C" or better (or ACCT 2103 and ACCT 2203 with a grade of "C" or better).
Description: Foundational skills and concepts underlying financial accounting and reporting. May not be used for degree credit with ACCT 3004.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 3004 Foundational Accounting and Data Skills
Prerequisites: (MSIS 2103 or AGEC 3213) with a grade of "C" or better and ACCT 2003 (or both ACCT 2103 and ACCT 2203) with a grade of "C" or better.
Description: Foundational skills and concepts underlying financial accounting and reporting and data analytics in accounting. May not be used for degree credit with ACCT 3003.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Accounting

ACCT 3013 Federal Income Taxation
Prerequisites: ACCT 3103 or ACCT 3104 with a grade of "C" or better.
Description: Federal income tax and its relationship to business decision-making; primary emphasis on recognition of the important tax consequences that attach to business transactions and the impact on decision-making. Same course as ACCT 4003. May not be used for degree credit with ACCT 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 3103 Intermediate Accounting I
Prerequisites: ACCT 3003 or ACCT 3004 with a grade of "C" or better (or ACCT 2103 and ACCT 2203 with a grade of "C" or better and satisfactory score on a qualifying exam covering basic accounting concepts).
Description: Theory and concepts underlying financial accounting and reporting. Previously offered as ACCT 3433 and ACCT 3303. May not be used for degree credit with ACCT 3104.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 3104 Intermediate Accounting I and Data Analysis
Prerequisites: ACCT 3004 or ACCT 3003 with a grade of "C" or better.
Description: Theory and concepts underlying financial accounting and reporting. Foundational accounting data analytics skills. May not be used for degree credit with ACCT 3103.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Accounting

ACCT 3113 Intermediate Accounting II
Prerequisites: ACCT 3104 or ACCT 3103 with a grade of "C" or better
Description: Theory and concepts underlying financial accounting and reporting. Continuation of ACCT 3103. Previously offered as ACCT 4433 and ACCT 3403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 3203 Cost Accounting
Prerequisites: ACCT 3004 or ACCT 3003 with a grade of "C" or better and STAT 2013 or STAT 2023 or STAT 2053 with a grade of "C" or better.
Description: Cost accounting knowledge and skills required of early career accountants. Topics covered likely to include cost accumulation systems, allocating product costs, planning and controlling costs, standard costing, and profitability analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 3603 Accounting Information Systems and Data Analytic Tools
Prerequisites: ACCT 3004 or ACCT 3003 with a grade of "C" or better.
Description: Accounting information systems knowledge and skills required of early career accountants. Topics likely to include accounting system design and installation, and related internal controls, as well as relevant data analytic tools. Course previously offered as ACCT 4603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4033 Advanced Federal Income Taxation
Prerequisites: ACCT 3013 with a grade of "C" or better.
Description: Federal income tax law applicable to individuals, corporations, partnerships, trusts and estates, and other specialized topics. Previously offered as ACCT 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4073 Tax Planning for Financial Professionals
Prerequisites: ACCT 3104 with a grade of "C" or better.
Description: Fundamental tax law, income taxation for individuals and businesses, and advanced tax reduction strategies. Emphasis on practical application, teaching students how to understand the tax implications of various financial decisions. May not be used for degree credit with ACCT 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4133 Advanced Accounting
Prerequisites: ACCT 3113 with a grade of "C" or better.
Description: Advanced accounting knowledge and skills required of early career accountants. Topics likely to include accounting for business combinations and consolidations, accounting for governmental and not-for-profit entities. Previously offered as ACCT 4403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4233 Internal Auditing
Prerequisites: ACCT 2003 and MSIS 3223.
Description: Internal auditing theory, procedures, and practices required of early career accountants. Previously offered as ACCT 4203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4503 External Auditing
Prerequisites: ACCT 3104 (or ACCT 3103) with a grade of "C" or better and ACCT 3603 with a grade of "C" or better or concurrent enrollment.
Description: External auditing theory, procedures, and practices required of early career accountants.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4553 Ethics for Public Accountants
Prerequisites: ACCT 3113 with a grade of "C" or better.
Description: Ethics concepts and applications required of early career accountants. Topics likely to include basic theories of ethics, including moral reasoning, moral values, relativity and objectivity, freedom and responsibility. Lecture and case approach for examination of issues such as independence, integrity, objectivity, client relationships, employee-employer relations, advertising, preferential treatment, core values and the corporation, and corporate governance, such as Sarbanes-Oxley Act, Foreign Corrupt Practices Act, and SEC regulations. Some states, including Texas, California, Colorado, and Virginia, require the completion of an ethics course to be eligible to sit for the CPA Exam. May not be used for degree credit with ACCT 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4623 Expanding Accounting Horizons in the U.S. for Non-Majors
Prerequisites: ACCT 2003 with a grade of "C" or better (or both ACCT 2103 and ACCT 2203 with a grade of "C" or better).
Description: A visit to a region or regions within the United States. An integrated approach to the organization, economic, political, historical, and technological issues impacting the firms, industries, or standard setters visited. May not be used for degree credit with ACCT 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4723 Expanding Accounting Horizons in the US
Prerequisites: ACCT 3004 or ACCT 3003 with a grade of "C" or better.
Description: A visit to a region or regions within the United States. An integrated approach to the organizational, economic, political, historical, and technological issues impacting the firms, industries, and standard settlers visited. Effect on the accounting profession of the firms, industries, and standard settlers visited is also examined. May not be used for degree credit with ACCT 4623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4743 Oil and Gas Accounting
Prerequisites: ACCT 3104 or ACCT 3103 with a grade of "C" or better.
Description: Generally accepted accounting practices and procedures in the oil and gas industry. May not be used for degree credit with ACCT 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4763 International Accounting Abroad (G)
Prerequisites: ACCT 2003 with a grade of “C” or better or consent of instructor.
Description: A visit to a location or locations outside the United States. An integrated approach to the cultural, economic, political, historical, and technological effects of the region on international accounting. Comparison of the accounting issues of the region to that of the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting
General Education and other Course Attributes: International Dimension

ACCT 4901 Advanced Accounting Tools and Technologies
Prerequisites: ACCT 3104 with a grade of "C" or better.
Description: Advanced accounting analytics and technology skills.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4911 Practicum in Professional Accounting II
Prerequisites: ACCT 3113 with a grade of "C" or better; BSBA-Accounting major or minor.
Description: Study of current and emerging issues in the accounting profession, focusing on the impact of emerging technology.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Accounting

ACCT 4930 Accounting Projects
Prerequisites: Consent of instructor.
Description: Special topics, projects and independent study in accounting. Previously offered as ACCT 4010. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 4933 Internship in Accounting
Prerequisites: ACCT 3113 with a grade of "C" or better.
Description: Supervised internship of at least 320 hours in public accounting, industry, government, or not-for-profit sector. Does not count toward upper-level accounting requirements for CPA Exam eligibility in all states. May not be used for degree credit with ACCT 5830. Graded on a pass-fail basis.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 4943 CIA Review
Prerequisites: ACCT 3113 with a "C" or better, and ACCT 4233 with a "C" or better or concurrent enrollment.
Description: Review of content and skills tested on the Certified Internal Auditor exam. Does not count toward upper-level accounting requirements for CPA Exam eligibility in all states. Graded on a pass-fail basis. Please see instructor for additional costs associated with the course and related materials. May not be used for degree credit with ACCT 4953, ACCT 4963, ACCT 4970, ACCT 5994, or ACCT 5980.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 4953 CMA Review
Prerequisites: ACCT 3113, ACCT 3203, and FIN 3113, all with a "C" or better.
Description: Review of content and skills tested on the Certified Management Accountant exam. Does not count toward upper-level accounting requirements for CPA Exam eligibility in all states. Graded on a pass-fail basis. Please see instructor for additional costs associated with the course and related materials. May not be used for degree credit with ACCT 4943, ACCT 4963, ACCT 4970, ACCT 5994, or ACCT 5980.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 4963 CPA Review
Prerequisites: ACCT 4133 with a grade of "C" or better (or concurrent enrollment) and completion of 120 credit hours.
Description: Review of context and skills tested on the Certified Public Accountant exam. Does not count toward upper-level accounting requirements for CPA Exam eligibility in all states. May not be used for degree credit with ACCT 4943, ACCT 4953, ACCT 4970, ACCT 5994, or ACCT 5980. Graded on a pass-fail basis. Please see instructor for additional costs associated with the course and related materials.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 4970 Accounting Professional Certification Review
Prerequisites: ACCT 3113 with a "C" or better and Instructor permission.
Description: Review of content and skills tested on specified professional accountancy exams. Does not count toward upper-level accounting requirements for CPA Exam eligibility in all states. May not be used for degree credit with ACCT 4943, ACCT 4953, ACCT 4963, ACCT 5994, or ACCT 5980. Graded on a pass-fail basis. Offered for variable credit, 1-4 credits, maximum 4 credit hours. Please see instructor for additional costs associated with the course and related materials.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 5003 Advanced Federal Income Taxation
Prerequisites: Admission to MS in accounting.
Description: Federal income tax law applicable to individuals, corporations, partnerships, trusts and estates, and other specialized topics. Previously offered as ACCT 4033. May not be used for degree credit with ACCT 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ACCT 5013 Tax Research
Prerequisites: Admission to MS in accounting.
Description: Development and administration of federal tax law with emphasis on the development of tax research skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ACCT 5043 Taxation of Pass-Through Entities
Prerequisites: Admission to MS in accounting and completion of ACCT 5013.
Description: Federal income tax laws applicable to pass-through entities, including partnerships and S corporations, and their owners.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5053 Corporate Taxation
Prerequisites: Admission to MS in accounting and completion of ACCT 5013.
Description: Federal income tax law applicable to corporations and shareholders.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5073 Tax Planning for Financial Professionals
Prerequisites: Admission to the MS Accounting or MS Quantitative Finance programs.
Description: Fundamental tax law, income taxation for individuals and businesses, and advanced tax reduction strategies. Emphasis on practical application, teaching students how to understand the tax implications of various financial decisions. May not be used for degree credit with ACCT 4073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5093 Reimagine: Innovative Accounting and Analytics Mindset
Prerequisites: Admission to the MS in Accounting Program.
Description: Focus on improving innovation, creativity, leadership and communication skills related to the accounting function. Please see Program Coordinator for additional costs associated with the course, related travel costs and scholarship opportunities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5100 Professional Development
Prerequisites: Admission into the MS in Accounting Program
Description: Practical insights into the accounting profession and development of essential career skills. Offered for 1 -3 credit hours, max of 9.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ACCT 5103 Seminar in Contemporary Accounting Theory I
Prerequisites: Admission to MS in accounting.
Description: Origins and development of accounting theory. Critical study of issues in contemporary accounting theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5113 Financial Accounting Research
Prerequisites: Admission to MS in accounting.
Description: Research and presentation of solutions for complex issues in contemporary accounting practice; using databases, SEC, FASB, AICPA, IASB, as well as other publicly available information.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ACCT 5133 Oil and Gas Accounting
Prerequisites: Admission to MS in accounting.
Description: Financial accounting and reporting for oil and gas operations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5143 Advanced Topics in Financial Reporting
Prerequisites: Admission to MS in Accounting Program
Description: Advanced theory and concepts underlying financial accounting and reporting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5153 Financial Statement Analysis
Prerequisites: Admission to MS in accounting.
Description: Study of the demand and supply of financial data, properties of numbers derived from financial statements, the role of financial information in investment decisions, and features of the decision-making environment. Previously offered as ACCT 5313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5183 MBA Financial Reporting
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Fundamentals of financial reporting, preparation and analysis of financial statements, and the role of financial accounting in decision making. Previously offered as ACCT 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ACCT 5204 Financial Reporting I
Prerequisites: Admission to a Spears School of Business graduate degree or certificate program and a "C" or better in ACCT 3003 or ACCT 3004 or ACCT 5183.
Description: Theory and concepts underlying financial accounting and reporting. Foundational accounting data analytics skills. May not be used for degree credit if a student has credit in ACCT 3103, ACCT 3104, or the equivalent.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Accounting

ACCT 5213 Financial Reporting II
Prerequisites: Admission to a Spears School of Business graduate degree or certificate program and a "C" or better in ACCT 3003 or ACCT 3004 or ACCT 5183.
Description: Theory and concepts underlying financial accounting and reporting. May not be used for degree credit with ACCT 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ACCT 5223 Financial Reporting III
Prerequisites: Admission to a Spears School of Business graduate degree or certificate program and a "C" or better in ACCT 5213 or equivalent
Description: Advanced accounting knowledge and skills required of early career accountants. Topics likely to include accounting for business combinations and consolidations, accounting for governmental and not-for-profit entities. May not be used for degree credit if a student has credit in ACCT 4133 or the equivalent.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5283 MBA Managerial Accounting
Prerequisites: ACCT 5183 and admission to MBA program or consent of MBA director.
Description: Interpretation of accounting data in planning, controlling and decision-making.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5333 Cost Accounting
Prerequisites: Admission to graduate program in the Spears School of Business AND ACCT 3004 OR ACCT 5183 or the equivalent
Description: Cost accounting knowledge and skills required of early career accountants. Topics covered likely to include cost accumulation systems, allocating product costs, planning and controlling costs, standard costing, and profitability analysis. Cannot be used for degree credit with ACCT 3203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ACCT 5343 Accounting Information Systems and Data Analytics Tools
Prerequisites: Admission to a Spears School of Business graduate degree or certificate program and ACCT 3003 or ACCT 3004 or ACCT 5183;
Description: Accounting information systems knowledge and skills required of early career accountants. Topics likely to include accounting system design and installation, and related internal controls, as well as relevant data analytic tools. May not be used for degree credit if a student has credit in ACCT 3603, or the equivalent.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5353 Federal Income Taxation
Prerequisites: Admission to a Spears School of Business graduate degree or certificate program and a “C” or better in ACCT 3003 or ACCT 3004 or ACCT 5183.
Description: Federal income tax and its relationship to business decision-making; primary emphasis on recognition of the important tax consequences that attach to business transactions and the impact on decision-making. May not be used for degree credit if a student has credit in ACCT 3013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5363 External Auditing
Prerequisites: Admission to a Spears School of Business graduate degree or certificate program and ACCT 3103 or ACCT 3104 or ACCT 5204.
Description: External auditing theory, procedures, and practices required of early career accountants. May not be used for degree credit if a student has credit in ACCT 4503 or the equivalent.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5453 Ethics for Public Accountants
Prerequisites: ACCT 3113 with a grade of "C" or better.
Description: Ethics concepts and applications required of early career accountants. Topics likely to include basic theories of ethics, including moral reasoning, moral values, relativity and objectivity, freedom and responsibility. Lecture and case approach for examination of issues such as independence, integrity, objectivity, client relationships, employee-employer relations, advertising, preferential treatment, core values and the corporation, and corporate governance, such as Sarbanes-Oxley Act, Foreign Corrupt Practices Act, and SEC regulations. Some states, including Texas, California, Colorado, and Virginia, requires the completion of an ethics course to be eligible to sit for the CPA Exam. May not be used for degree credit with ACCT 4553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5503 Advanced Auditing
Prerequisites: Admission to MS in accounting.
Description: Auditing theory, procedures and practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ACCT 5543 Fraud Examination
Prerequisites: Permission of SSB Graduate Programs office.
Description: Schemes used in the commission of white-collar fraud, as well as causes, symptoms and prevention methods related to these crimes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5563 Special Topics in Taxation
Prerequisites: Admission to the MS in Accounting Program and ACCT 5013.
Description: The study of specialized topics including state and local income tax, tax issues related to non-profit entities, tax compliance and planning, and international tax issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5603 Advanced Accounting-based Information Systems
Prerequisites: Admission to MS in accounting.
Description: Concepts underlying the design and use of an effective accounting information system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5623 Contemporary Issues in Taxation
Prerequisites: Admission to the MS in Accounting Program and ACCT 5013.
Description: Contemporary issues in taxation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5723 Expanding Accounting Horizons in the US
Prerequisites: Admission to MS in accounting.
Description: A visit to a region or regions within the United States. An integrated approach to the organizational, economic, political, historical, and technological issues impacting the firms, industries, and standard settlers visited. Effect on the accounting profession of the firms, industries, and standard settlers visited is also examined.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5763 International Accounting Abroad
Prerequisites: Admission to MS in accounting.
Description: A visit to a location or locations outside the United States. An integrated approach to the cultural, economic, political, historical, and technological effects of the region on international accounting. Comparison of the accounting issues of the region to that of the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5783 MBA International Acct
Prerequisites: ACCT 5183 and admission to MBA program or consent of MBA director.
Description: Diversity in financial reporting across countries and its effect on global capital flows. Corporate financial information across borders. Accounting in emerging markets.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5833 Graduate Internship in Accounting
Prerequisites: Admission to MS in accounting. Completion of either MSIS 5393 or department approved Excel program.
Description: Minimum 320-hour supervised internship in an accounting-related function. May be counted as elective hours only. May not be used for degree credit with ACCT 4933. Graded on a pass-fail basis. Supervised internship in public accounting, industry, or not-for-profit organizations. May be counted as elective hours only. Previously offered as ACCT 5900 and ACCT 5830. May not be used for degree credit with ACCT 4933. Graded on a pass-fail basis.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 5840 Special Topics and Individual Work in Accounting
Prerequisites: Admission to MS in accounting and consent of instructor.
Description: Individual work on special topics, projects or readings selected to acquaint students with significant accounting literature. Previously offered as ACCT 5110. Offered for variable credit, 1-10 credit hours, maximum of 10 credit hours.
Credit hours: 1-10
Contact hours: Lecture: 1-10 Contact: 1-10
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 5880 MBA Special Topics in Accounting
Prerequisites: ACCT 5183 and admission to MBA program or consent of MBA director.
Description: Individual work on special topics, projects or readings to acquaint students with accounting literature. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 5980 CPA Review
Prerequisites: Admission to MS in accounting program.
Description: Review of content and skills tested on the Certified Public Accountant exam. May not be used for degree credit with ACCT 4943, ACCT 4953, ACCT 4963, or ACCT 4970. Please see Program Coordinator for additional costs associated with the course and related materials. Previously offered as ACCT 5990 and ACCT 5994. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Accounting
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ACCT 6000 Doctoral Research and Thesis
Prerequisites: Approval of advisory committee.
Description: For students working on the doctoral degree. Offered for variable credit, 1-18 credit hours, maximum of 36 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Graduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 6110 Graduate Readings and Special Topics in Accounting
Prerequisites: Consent of supervising professor and coordinator of graduate programs in accounting.
Description: Supervised reading of significant literature and study of special topics not covered in regularly scheduled accounting courses. Offered for variable credit, 1-3 credit hours, maximum of 20 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Accounting

ACCT 6703 Seminar in Accounting Research
Prerequisites: Doctoral student status and consent of coordinator of graduate programs in accounting.
Description: The theoretical literature and research methodology in accounting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 6803 Capital Markets Research in Accounting
Prerequisites: Consent of supervising professor and coordinator (or director) of the doctoral program in accounting.
Description: This course introduces empirical accounting research literature, particularly in the areas of capital markets, security valuation, and determinants of accounting choices made by managers. Students read and discuss several papers that examine a broad range of research questions and that use a variety of empirical research techniques. The course is designed to enable the student to understand and appreciate extant research, and help the student develop the skills necessary to conduct their own research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

ACCT 6903 Analytical and Archival Research
Prerequisites: Consent of supervising professor and coordinator (or director) of the doctoral program in accounting.
Description: This course introduces analytical research literature in the areas of accounting, finance, and economics. Students read and discuss several papers that examine a broad range of research questions and that address those questions using analytical and archival research techniques. The course is designed to enable the student to understand and appreciate extant research, and help the student develop the skills necessary to conduct their own research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Accounting

Aerospace Studies - Air Force (AERO)

AERO 1000 General Military Course Leadership Laboratory
Prerequisites: Concurrent enrollment in AERO 1111 or AERO 1211 or AERO 2111 or AERO 2211 or with department permission
Description: Leadership Laboratory (LLAB) is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander. Offered for variable credit, 1-6 hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lab: 2-12 Contact: 2-12
Levels: Undergraduate
Schedule types: Lab
Department/School: Aerospace Studies

AERO 1111 Department of the Air Force (DAF) Professionalism
Description: "Department of the Air Force (DAF) Professionalism," is designed to introduce students to the DAF and its culture, providing an overview of essential attributes required for success in this context. Enroll in this course to join Air Force/Space Force ROTC. Joining ROTC does not commit you to military service, but you will receive military training and a path to enter the Air Force or Space Force as a commissioned officer upon graduation. This is a great way to see if military service is right for you.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

AERO 1211 Competition and Security
Description: "Competition and Security," introduces students to the concept of national security from a broad perspective, encompassing the military's involvement in securing national interests through a range of activities from cooperation to armed conflict. This course is designed to lay a solid foundation for understanding the multifaceted nature of global security and the critical role of the DAF in maintaining peace and security.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

AERO 2111 Team and Leadership Fundamentals I
Description: "Team and Leadership Fundamentals" provides a fundamental understanding of both leadership and team building. The lessons and course flow are designed to prepare students for field training and leadership positions in the detachment.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

AERO 2211 Team and Leadership Fundamentals II
Prerequisites: AERO 2111, must pass with a "C" or better.
Description: This course builds on the fundamental understanding of both leadership and team building. Topics include listening, understanding themselves, being a good follower and problem solving efficiently. The students will apply these leadership perspectives when completing team building activities and discussing things like conflict management. Cadets will apply these lessons at Field Training, which follows the AS200 year.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

AERO 3000 Professional Officer Course Leadership Laboratory
Prerequisites: Concurrent enrollment in AERO 3103 or AERO 3203 or AERO 4103 or AERO 4203 or with department permission
Description: Leadership Laboratory (LLAB) is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander. Offered for variable credit, 1-8 hours Maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Lab: 2-16 Contact: 2-16
Levels: Undergraduate
Schedule types: Lab
Department/School: Aerospace Studies

AERO 3103 Leading People and Effective Communication I
Prerequisites: AERO 2211, must pass with a "C" or better; or with department permission.
Description: "Leading People and Effective Communication" utilizes student's field training experience to take a more in-depth look at leadership. Special emphasis is placed on enhancing communication skills, and why that is important as a leader. Students have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

AERO 3203 Leading People and Effective Communication II
Prerequisites: AERO 3103, must pass with a "C" or better; or with department permission.
Description: "Leading People and Effective Communication" utilizes student's field training experience to take a more in-depth look at leadership. Special emphasis is placed on enhancing communication skills, and why that is important as a leader. Students have an opportunity to try out leadership and management techniques in a supervised environment as juniors and seniors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

AERO 3504 Field Training Encampment Program
Prerequisites: Consent of professor of aerospace studies.
Description: Practical training on an Air Force base. Junior officer training, familiarization training in most functional aspects of a typical Air Force base. Includes career orientation, small arms firing, flight orientation rides, and survival training.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

AERO 4103 National Security, Leadership Responsibilities and Commissioning Preparation I
Prerequisites: AERO 3203, must pass with a "C" or better; or with department permission.
Description: "National Security and Preparation for Active-Duty" is designed for college seniors and provides them the foundation to understand their role as military officers and how they are directly tied to our National Security. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

AERO 4203 National Security, Leadership Responsibilities and Commissioning Preparation II
Prerequisites: AERO 3203, must pass with a "C" or better; or with department permission.
Description: Students are instructed on the responsibility, authority, and functions on an Air Force commander and selected provisions of the military justice system. The final semester of the AS400 course is designed to prepare cadets for life as a second lieutenant. "National Security and Preparation for Active-Duty" is designed for college seniors and provides them the foundation to understand their role as military officers and how they are directly tied to our National Security.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

AERO 4402 Summer Professional Development Training Program
Prerequisites: Consent of professor of aerospace studies.
Description: Students spend from two to three weeks on an Air Force base working in their intended specialty under supervision of experienced officer. Leadership and management principles applied to day-to-day experiences.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Aerospace Studies

African American Studies (AFAM)

AFAM 1113 Introduction to Africana Studies (DH)
Description: The course will examine the history and development of Africana Studies as an academic discipline and will provide a comprehensive overview of the field employing a broad interdisciplinary approach. A range of topics will be covered including history, art, literature, language, dance, music, religion, sociology, and geography throughout the African Diaspora, with a particular focus on the United States.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AFAM 2223 Movements of the Black Diaspora (G)
Description: This course focuses on local, national, and international movements via investigation of the diversity of Black people throughout the diaspora, including the United States, the other countries of North and South America, Europe, Sub-Saharan Africa and Latin America.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: International Dimension

AFAM 2423 Black Popular Culture (DH)
Description: The course examines forms of Black popular art and culture as well as the relationship of Black intellectual traditions, political movements, philosophical arguments, or social and historical contexts. Course may cover such forms as popular music, film, performance, comics, fashion, cyber culture, or television. Approaches may be thematic or historical and will include consideration of issues related to race, gender, class, sexuality, and power.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AFAM 2523 Black Political Thought (DH)
Description: Black Political Thought develops a set of critical tools to help explain the distinctiveness of Black Politics. It pursues a deep understanding of the Black intellectual traditions that inform an enhanced understanding of Political Theory's core concepts. Using the lens of the African diaspora it investigates the abiding concerns of Political Theory, i.e., the meanings of justice, freedom, and equality; the nature of power, obligation, and "the good life."
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AFAM 3343 Black Psychology (DS)
Prerequisites: PSYC 1113.
Description: Students will gain an understanding of the psychology of African Americans drawing upon African and American cultures and perspectives. The course will cover the foundations of African American psychology, African philosophy, Africentric psychology, intrapersonal and interpersonal topics such as family and community, peers and friends, racial identity, and select social issues among African Americans such as physical and mental health, education, racism, and employment. Same course as PSYC 3343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Society & Human Behavior

AFAM 3523 LANGUAGE AND IDENTITY IN THE AFRICAN DIASPORA (DH)
Description: This course will take an interdisciplinary approach to the study of the relationship between language, culture, and identity, primarily focusing on the Black and African Diasporic communities in the United States. Drawing on sociolinguistics, literature, film, critical theory, history, and anthropology, we will examine how language is not only a means of communication, but also a powerful symbol of identity, cultural preservation, and a tool of resistance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AFAM 3753 African American Arts and Culture (DH)
Description: An exploration of the history, practice, and significance of African-American arts and culture. Topics might include black visual, literacy, filmic, musical, and street arts, artists, and movements. Approaches may be comparative or transnational. Same course as AMST 3753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AFAM 3950 Special Topics in Africana Studies
Description: Particular topics to illustrate the use of interdisciplinary methods in Africana Studies. Topics might include: social issues, art and culture, popular culture, class, transnational or comparative approaches, gender, economics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

AFAM 4453 Black Geographies & Memorialization in the Landscape (DH)
Prerequisites: Junior or senior standing or consent of instructor.
Description: How and why have African American people sought to memorialize their history in public places? How have Black counterpublics shaped discourse on memorials to African American history? What has this discourse done to the field of landscape and memory studies? To explore these questions, this course is organized around memory in the landscape as it relates to black geographies, including, for example, slavery, the Civil War, civil rights, and the Tulsa Race Massacre in the United States. Approaches may be comparative or transnational. Same as AMST 4453 and GEOG 4453. May not be used for degree credit with GEOG 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AFAM 4543 Race Theory
Prerequisites: 3 hours upper-division AFAM or permission of instructor.
Description: In-depth study of theories of race and racism from an interdisciplinary Africana Studies perspective, utilizing Africana Studies methodologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

AFAM 4980 Research in Africana Studies
Prerequisites: 1 upper-level course eligible for African Studies minor.
Description: For students interested in pursuing either a research or a directed reading project. Project will be student-initiated and student-designed with faculty mentor input and guidance. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: English

AFAM 5990 Directed Inquiry in Africana Studies
Prerequisites: Permission of instructor.
Description: Specialized readings or independent study in Africana Studies. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: English

Ag International (AGIN)

AGIN 5000 Master's Thesis/Report in International Agriculture
Description: For students working on a masters degree in International Agriculture. Independent research and thesis under the direction and supervision of a major professor. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

AGIN 5102 International Agriculture Creative Component
Prerequisites: Graduate standing or consent of instructor.
Description: Development of independent project to improve or inform an international agriculture practice based on scholarship.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

AGIN 5113 Global Agricultural Development Communications
Prerequisites: Graduate Standing.
Description: Role of Information Communication Technologies in global agricultural development and the storytelling process as a communication tool for global agricultural development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AGIN 5213 Global Agricultural Entrepreneurship
Prerequisites: Graduate Standing.
Description: Use of entrepreneurship principles to develop solutions to emerging and/or existing problems and challenges in global agriculture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AGIN 5312 Applied Issues in International Agriculture and Natural Resources
Prerequisites: Graduate standing or consent of instructor.
Description: Applied global issues in international agriculture and natural resource development, including sustainability, food security, trade, project evaluation, and international agricultural institutions. Written and oral reports and discussion of selected topics. Previously offered as AG 5010.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AGIN 5313 Global Food Security and Sustainability
Prerequisites: Graduate Standing.
Description: Broad overview of the complexity of global food systems including key challenges to security and sustainability of agricultural production now and in the future.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AGIN 5333 Guided Reading in International Agriculture and Natural Resources
Prerequisites: Graduate standing or consent of Instructor.
Description: Understanding of international agricultural development objectives, challenges, and solutions to the most critical problems facing the developing world's food and agricultural systems, through readings of a set of classic and contemporary books and constructing book reports.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AGIN 5353 Advanced Case Studies in Agricultural Marketing and International Development
Prerequisites: Consent of Instructor.
Description: Advanced real world issues in marketing and international development of agricultural and food products. Development of an understanding of issues facing policy makers, producers, consumers, and other groups in examining the costs and benefits of various international marketing, trade and development programs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AGIN 5413 Overview of Global Development
Prerequisites: Graduate Standing.
Description: Examines effective principles and practices of International development and provides a thorough understanding of current issues in development by guiding students to an understanding of how development issues are being approached, what methodologies are effective, and how to use the tools of development. Same course as GS 5413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AGIN 5713 Participatory Tools and Processes for Community Engagement
Prerequisites: Graduate standing in AGIN or consent of instructor.
Description: Cultivates skills in the practical application of participatory tools and processes to interact more effectively with local communities. Provides facility in standard facilitation techniques alongside systems thinking tools to develop skills in managing group dynamics, encouraging team building, and helping groups come to consensus and sustainable decisions.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Agriculture

AGIN 5723 Participatory Systems Modeling
Prerequisites: AGIN 5713 or consent of instructor.
Description: Develops facility in the application and use of system dynamics models based on the interaction and engagement with stakeholder groups. Teaches system dynamics techniques and relevant software and applies these to various international agriculture problems. Exposes students to the theory and practice of using group model building techniques with stakeholders to enhance decision making.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AGIN 5800 International Agriculture Internship Experience
Prerequisites: Graduate standing or consent of instructor.
Description: Students conducting an international internship experience, under the direction and supervision of a faculty member. Previously offered as AG 5100. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AGIN 5801 International Agricultural Experience Proposal
Prerequisites: Consent of instructor.
Description: Students planning and preparing an international internship experience, under the direction and supervision of a faculty member.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

AGIN 5990 Advanced Studies in International Agriculture and Natural Resources
Prerequisites: Consent of Instructor.
Description: Individual or small group study and/or research in international agriculture and natural resources. Offered for variable credit, 1-12 credit hours, maximum of 15 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

Agricultural Communications (AGCM)

AGCM 2113 Introduction to Agricultural Communications
Prerequisites: ENGL 1213 or 1413. Major in AGCM or consent of instructor.
Description: Fundamentals of agricultural news writing and other communication methods. Careers in and the role of the media in agriculture and related fields. Previously offered as AGCM 2103 and AGCM 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 3100 Special Topics in Agricultural Communications
Prerequisites: Consent of instructor.
Description: Investigation of specialized and/or advanced topics and issues related to agricultural communications. Previously offered as AGCM 3101. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGCM 3103 Written Communications in Agricultural Sciences and Natural Resources
Prerequisites: ENGL 1213; College of Agricultural Sciences and Natural Resources student.
Description: Understanding and application of writing principles and communications theory as related to public issues in agriculture, food and natural resources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 3113 Writing and Editing for Agricultural Publications
Prerequisites: AGCM 2113 with a grade of "C" or better; major in agricultural communications.
Description: Interviewing, reporting, writing, and editing for agricultural publications.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 3123 Audio and Video Storytelling in Agricultural Communications
Prerequisites: Grade of "C" or better in AGCM 2113; Grade of "C" or better in AGCM 3233 or AGCM 4233, or concurrent enrollment in AGCM 3233.
Description: Exploration and application of audio and video media storytelling techniques for agricultural communicators as used in promoting, marketing and communicating about agriculture, food, natural resources and the environment.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 3203 Oral Communications in Agricultural Sciences & Natural Resources (S)
Prerequisites: Student in the College of Agricultural Sciences and Natural Resources.
Description: Application of oral communications skills used in the dissemination of information related to agricultural sciences and natural resources, and related topics. Acquisition of interpersonal communications skills and small group, impromptu and professional presentation skills.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership
General Education and other Course Attributes: Society & Human Behavior

AGCM 3213 Layout and Design for Agricultural Publications
Prerequisites: AGCM 2113 with a "C" or better; major in agricultural communications.
Description: Fundamentals of layout and design as applied to agricultural publications. Practical application of design principles, typography, design software and printing practices.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 3223 Digital and Online Media in Agricultural Communications
Prerequisites: AGCM 2113 and AGCM 3213 with a "C" or better; major in agricultural communications.
Description: Fundamentals of using digital and online media and mass communication for agriculture and natural resources, including web, social media and email marketing. Practical application of theory and skills related to design, management and evaluation of digital and online media.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 3233 Basic Photography and Photo Editing for Agriculture
Prerequisites: AGCM 2113 with a "C" or better; major in agricultural communications.
Description: Beginning course focusing on photographic equipment, related software and photo composition in an agricultural setting.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 2 Contact: 5 Other: 2
Levels: Undergraduate
Schedule types: Independent Study, Lab, Lecture, Lecture Lab Indep Study
Department/School: Ag Ed, Comm & Leadership

AGCM 3503 Issues Management and Crisis Communications in Agriculture and Natural Resources
Prerequisites: Junior or senior standing; Major in CASNR.
Description: Theoretical perspectives and practical applications of issues management, crisis management, and crisis communications principles. Development of knowledge, skills, and abilities necessary for identifying and managing issues faced by organizations; leading organizations through crises; and communicating before, during and after crisis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 4113 Features Writing and Editing for Agricultural Publications
Prerequisites: AGCM 3113 with a grade of "C" or better; major in agricultural communications or consent of instructor.
Description: Brainstorming, researching, interviewing, developing, writing and editing feature stories for agricultural publications. May not be used for degree credit with AGCM 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 4203 Professional Development in Agricultural Communications
Prerequisites: AGCM 2113 with a "C" or better; major in agricultural communications.
Description: Professional preparation and personal development for careers in agricultural communications, including business communications writing, resume and portfolio development, presentation delivery, financial planning and management, networking, and job interview skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 4233 Agricultural Photography Tour
Description: Agricultural photography travel course focused on advanced composition techniques including but not limited to night photography, portraits, painting, etc. Students will be exposed to many cultural and agricultural sites from a photographic perspective. No credit for students with credit in AGCM 5233.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 4300 Internships in Agricultural Communications
Prerequisites: Consent of internship coordinator and adviser.
Description: Supervised work experience with approved employers in agricultural communications. Presentation required following the internship experience. Previously offered as AGCM 4500. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGCM 4403 Planning Campaigns for Agriculture and Natural Resources
Prerequisites: AGCM 3113, AGCM 3213 and AGCM 3223 with a "C" or better; major in agricultural communications.
Description: Communications campaign development for agriculture and natural resources activities and issues, including development of materials, budgets and contracts.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 4413 Agricultural Communications Capstone
Prerequisites: AGCM 3213 and AGCM 3233 or AGCM 4233, and AGCM 4113 with a "C" or better; senior or graduate standing in agricultural communications.
Description: The development of an agricultural magazine through advanced feature writing and editing, page layout, graphic design, photography, and sponsor communications as well as an understanding of the printing process. May not be used for degree credit with AGCM 4413.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 4990 Problems in Agricultural Communications
Prerequisites: Consent of instructor.
Description: Small group and individual study and research in problems relating to communications within the agricultural sector and from the agricultural sector to other constituencies. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGCM 5000 Research and Thesis
Prerequisites: Graduate standing.
Description: Independent research and thesis under the direction and supervision of a major professor. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGCM 5100 Special Topics in Agricultural Communications
Prerequisites: Consent of instructor.
Description: Investigation of specialized and/or advanced topics and issues related to agricultural communications. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGCM 5103 History and Philosophical Foundations of Agricultural Communications
Prerequisites: Graduate standing.
Description: Discussion of the history, philosophical foundations and current issues regarding agricultural communications and the land-grant system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 5113 Features Writing and Editing for Agricultural Publications
Prerequisites: AGCM 3113 with a grade of "C" or better; major in agricultural communications or consent of instructor.
Description: Brainstorming, researching, interviewing, developing, writing and editing feature stories for agricultural publications. May not be used for degree credit with AGCM 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 5123 Advanced Audio and Video Storytelling in Agricultural Communications
Description: Application of audio and video storytelling concepts to communicating about issues in agriculture, food, natural resources, and the environment.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 5133 Agricultural Photography and Photo Editing
Description: Photographic history, theory and research along with practical knowledge in equipment, software, composition, and the photographic light triangle. May not be used for degree credit with AGCM 3233.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 2 Contact: 5 Other: 2
Levels: Graduate
Schedule types: Independent Study, Lab, Lecture, Lecture Lab Indep Study
Department/School: Ag Ed, Comm & Leadership

AGCM 5143 Writing for Scholarly Publications in Agricultural Sciences and Natural Resources
Description: Development of scientific writing skills for agricultural sciences and natural resources disciplines, including research proposals, theses, dissertations, conference papers, and journal articles. Previously offered as AGCM 5132.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 5203 Theory and Practice in Agricultural Communications
Prerequisites: Graduate standing.
Description: The study of major communication theories and theorists in the context of agricultural communications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 5213 Advanced Concepts in Agricultural Publishing
Prerequisites: Graduate standing.
Description: Analysis, redesign and creation of agricultural publications. Evaluation of audience, production, advertising and editorial content.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 5223 Digital and Online Media in Agricultural Communications
Prerequisites: Consent of instructor.
Description: Fundamentals of using digital and online media and mass communication for agriculture and natural resources, including web, social media and email marketing. Practical application of theory and skills related to design, management and evaluation of digital and online media. May not be used for degree credit with AGCM 3223.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 5233 Agricultural Photography Tour
Description: Agricultural photography travel course focused on advanced composition techniques including but not limited to night photography, portraits, painting, etc. Students will be exposed to many cultural and agricultural sites from a photographic perspective. No credit for students with credit in AGCM 4233.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 5303 Communicating Ethical Issues in Agriculture
Prerequisites: Graduate standing.
Description: An introduction to communicating ethical theories in the context of agriculture. Ethical theory and current research are used to critique contemporary issues in agriculture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 5403 Public Relations Campaigns in Agricultural Sciences and Natural Resources
Prerequisites: AGCM 5213.
Description: Public relations campaign development for agriculture and natural resources organizations and issues, including public relations theory, strategic planning and campaign material development. No credit for students with credit in AGCM 4403.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 5413 Agricultural Communications Capstone
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGCM 5503 Risk and Crisis Communication in Agricultural Sciences and Natural Resources
Description: Development of risk and crisis communication skills and knowledge with special emphasis in agricultural sciences and natural resources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGCM 5990 Advanced Studies in Agricultural Communications
Prerequisites: Consent of supervising professor.
Description: Individual and small group study or research in agricultural communications topics and issues. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

Agricultural Economics (AGEC)

AGEC 1101 Agricultural Economics and Agribusiness Experience
Description: Developing connections between the student's major curriculum, career goals specific to agricultural economics or agribusiness, and networking with other students, faculty and alumni.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 1113 Introduction to Agricultural Economics (S)
Description: Economic theory of production, marketing, and consumption of agricultural products and natural resources. The role and structure of agricultural sciences and natural resources within the American economy. Policies to achieve efficiency and welfare goals in agriculture. No general education credit for students also taking ECON 1113 or ECON 2103. Previously offered as AGEC 1114.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics
General Education and other Course Attributes: Society & Human Behavior

AGEC 2303 Food Marketing to a Diverse Population (D)
Description: Food and beverage demand and preferences of socially and ethnically constructed groups in American Society. Real life issues of marketing to a diverse population, including Native, Asian, African and Hispanic Americans, and low-income populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics
General Education and other Course Attributes: Diversity

AGEC 2313 Case Studies in Agricultural Trade and Development
Prerequisites: A course in economics or marketing.
Description: Real world issues in international trade and development of agricultural and food products. Development of an understanding of issues facing policymakers, producers, consumers, and other groups in examining the costs and benefits of various trade and development programs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 2890 Introductory Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in designated course.
Description: A supplemental introductory honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated courses. Offered for 1-3 credit hours, max of 9.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics
General Education and other Course Attributes: Honors Credit

AGEC 2990 Problems in Agricultural Economics and Agribusiness
Description: Directed study on topics related to agricultural economics or agribusiness. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 3010 Internship in Agricultural Economics
Prerequisites: Approval of internship committee and advisor.
Description: Supervised work experience with approved public and private employers in agricultural economics, including banks, farm credit services, agriculture chemical firms, Soil Conservation Service, congressional offices and other opportunities. Credit will not substitute for required courses. Graded on a pass-fail basis. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 3023 Farm to Fork
Description: Survey of agriculture and natural resources and their relationships to society. Role of advanced scientific technologies in alternative systems of food production and distribution.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3101 Professional Career Development
Prerequisites: Major in Agricultural Economics or Agribusiness or consent of instructor.
Description: Overview of the various areas of specialization within agricultural economics and agribusiness and their associated career opportunities and obligations. Development and improvement of written communication, oral communication and leadership skills. Previously offered as AGEC 4902.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3183 Agribusiness Accounting and Taxation
Prerequisites: 60 semester credit hours, including ENGL 1113 and MATH 1513 or equivalent.
Description: Development of the ability to read, analyze, and use accounting information to improve decision-making and tax planning. Same course as ACCT 3183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3213 Quantitative Methods in Agricultural Economics
Prerequisites: (AGEC 1113 or ECON 2003 or ECON 2103) and (MATH 1483 or MATH 1513 or MATH 2103 or MATH 2144, each with a grade of "C" or better; or Math placement score required for MATH 2103 (see placement.okstate.edu)).
Description: Indices, graphics, budgeting, interest calculations, compounding and discounting, basic statistic measures, regression, optimization and computer applications.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Agricultural Economics

AGEC 3323 Agricultural Product Marketing and Sales
Prerequisites: 40 semester credit hours, including (AGEC 1113 or ECON 2003 or ECON 2103) and ENGL 1113.
Description: Fundamentals of agricultural marketing management and planning applied to specific agricultural product (input and output) marketing problems. Institutional differences between agricultural and non-agricultural marketing environments. The role of the individual sales representative in a marketing and sales organization. Written and oral presentations of marketing and sales information required of all students. Previously offered as AGEC 4313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3333 Agricultural Marketing and Price Analysis
Prerequisites: AGEC 3213 with a minimum grade of C.
Description: Supply, demand, and price determination within the institutional environment of agricultural commodity markets. Roles provided by government intervention, marketing agreements, and cooperatives in agricultural markets. Includes graphical, mathematical, and statistical analysis of commodity markets. Fundamentals of futures markets applied to agriculture. Previously offered as AGEC 3303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3403 Agricultural Small Business Management
Prerequisites: (AGEC 1113 or ECON 2003 or ECON 2103) and (ACCT 2003 or ACCT 2103 or ACCT 3183 or AGEC 3183).
Description: The essentials of operating an agricultural small business. An introduction to the planning, organizing, marketing, managing, financing, controlling and operating an agricultural small business. Not recommended for agricultural economics or agribusiness majors. No credit for students with prior credit in 4423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3423 Farm and Agribusiness Management
Prerequisites: (AGEC 1113 or ECON 2003 or ECON 2103) and (ACCT 2003 or ACCT 2103 or ACCT 3183 or AGEC 3183).
Description: Fundamentals of managerial functions as applied to agricultural firms. Organization and management of human, financial, and physical assets for the profitable operation of an agricultural business. An introduction to business planning, enterprise budgeting, financial statements and record keeping. Previously offered as AGEC 3413.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Agricultural Economics

AGEC 3463 Agricultural Cooperatives
Prerequisites: AGEC 1113 or ECON 2003 or ECON 2103.
Description: An evaluation of the fundamental principles, objectives, structure, finance, and management associated with the cooperative organization. An analysis of the cooperative business organization within the modern economy: history, legislation and evolution. An examination of careers related to cooperatives. Previously offered as AGEC 3313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3503 Natural Resource Economics
Prerequisites: AGEC 1113 or ECON 2003 or ECON 2103.
Description: Framework for analyzing natural resource management decisions. Applications of microeconomic theory to the management of soil, water, and other resources, with special emphasis on the institutions having an impact on management opportunities. Supply of and demand for natural resources, resource allocation over time, rights of ownership, public issues of taxation, police power and eminent domain.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3603 Agricultural Finance
Prerequisites: ("C" or better in AGEC 3213 and AGEC 3423) and (ACCT 2203 or ACCT 2003).
Description: Analyze farm and agribusiness financial statements. Understand the relationship between firm growth and financial leverage. Time value of money concepts and their application to capital budgeting. Discuss how agricultural lenders acquire and use funds.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3703 Issues in Agricultural Policy
Prerequisites: AGEC 1113 or ECON 2003 or ECON 2103.
Description: Emerging issues related to agricultural policy in the United States.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3713 Agricultural Law
Prerequisites: 40 semester credit hours, including AGEC 1113 or ECON 2003 or ECON 2103.
Description: Survey of law with emphasis on agricultural problems, applications, and strategies for managing legal risk in the agribusiness setting. Contract law, tort law, property law, real estate transactions, business organization, estate planning, debtor/creditor law, environmental law and water/resources law. Previously offered as AGEC 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3723 Environmental Law for Agriculture and Natural Resources
Description: Analysis of U.S. environmental laws and regulations with application to agricultural production and natural resource management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3803 International Agricultural Economics Tour (G)
Prerequisites: Consent of instructor.
Description: A two-three week international travel component. An integrated approach to the cultural, agricultural, historical, technological, political, economic, and religious backgrounds of the region. Comparison of the agricultural business environment of the region to that of the U.S. Previously offered as AGEC 4803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics
General Education and other Course Attributes: International Dimension

AGEC 3810 Domestic Agricultural Economics Tour
Prerequisites: Consent of instructor.
Description: An integrated approach to the cultural, agricultural, historical, technological, political and economic backgrounds of an agricultural region of the United States. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 3890 Advanced Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental advanced honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated course(s). Offered 1-3 credit hours, max of 9 hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics
General Education and other Course Attributes: Honors Credit

AGEC 3990 Special Problems in Agricultural Economics
Description: Directed study of selected agricultural economics topics. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 4101 Agricultural Economics Seminar
Prerequisites: Senior standing and agricultural economics or agribusiness major status.
Description: Contemporary problems in agricultural economics. Previously offered as AGEC 4911.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4213 Advanced Quantitative Methods in Agricultural Economics
Prerequisites: ("C" or better in AGEC 3213) and (MATH 2103 or MATH 2123 or MATH 2144).
Description: Quantitative analysis of agricultural production and markets including risk and uncertainty. Introduction to simulation. Development of statistical and software skills. Written presentation of an analysis of data. Previously offered as AGEC 3203. May not be used for Degree Credit with AGEC 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4223 Quantitative Supply Chain Management in Agribusiness
Prerequisites: ("C" or better in AGEC 3213) and (MATH 2103 or MATH 2123 or MATH 2144).
Description: Challenge in food supply chain management. Tools to solve logistics problems including traveling salesperson, vehicle routing, and distribution center problems. Forecasting sales and queuing theory. Introduction to specialized software used in supply chain management. May not be used for Degree Credit with AGEC 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4243 Researching Consumer Food Preferences
Prerequisites: (AGEC 1113 or ECON 2003 or ECON 2103) and (STAT 2013 or STAT 2023 or STAT 4013).
Description: Design, implementation, and interpretation of research in consumer food preferences. Includes design of consumer surveys, conducting consumer interviews, preparing food and questionnaires for taste-test experiments, targeting and recruiting scientifically valid samples, the statistical analysis of data, and communication of results. Previously offered as FDSC 4243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4333 Commodity Futures Markets
Prerequisites: ("C" or better in AGEC 3213 and AGEC 3333).
Description: The economics of commodity futures markets. The vocabulary of futures markets and the mechanics of trading and hedging. Basis and producer marketing strategies. Fundamental analysis and statistical analysis of data. Technical analysis, behavioral finance, efficient market hypothesis and basics of option pricing. May not be used for degree credit with AGEC 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4343 International Agricultural Markets and Trade (G)
Prerequisites: ECON 3023 OR ECON 3113.
Description: Contemporary international agricultural trade theory and applications. Tools to identify, evaluate critically, and seek solutions to complex international trade and development problems, such as gains from trade, comparative advantage, impacts of trade barriers on social welfare, export promotion effectiveness, trade impacts on environment and land degradation, free trade areas and impacts of genetically modified crops on trade.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics
General Education and other Course Attributes: International Dimension

AGEC 4403 Advanced Farm and Ranch Management
Prerequisites: AGEC 3423 with a minimum grade of C, and AGEC 3603 with a minimum grade of C or concurrent enrollment.
Description: The development of problem solving and risk management skills needed on the modern farm or ranch. Use of spreadsheets to perform production planning and analysis of farm and ranch problems with linear programming, simulations, and other tools. Analysis of the acquisition of resources and the use of information systems in managing the individual farm or ranch business. May not be used for Degree Credit with AGEC 5043.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Agricultural Economics

AGEC 4423 Advanced Agribusiness Management
Prerequisites: AGEC 3333 and (AGEC 3603 or concurrent).
Description: Application of modern decision theory in the uncertain environment that the agricultural business operates. Planning, organizing, implementing, coordinating, and controlling problems associated with establishing an agricultural business, achieving firm growth and operating the firm through time. Use of spreadsheets to perform production planning and analysis related to agricultural business operation with linear programming, simulations, and other tools. Analysis of the interaction of resources, prices and production alternatives. Previously offered as AGEC 4323. May not be used for Degree Credit with AGEC 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4503 Environmental Economics and Resource Development
Prerequisites: AGEC 3503 or ECON 3023 or ECON 3113 or consent of instructor.
Description: Economic, social, and political factors relating to conservation, natural resource development, and environmental quality. Valuation of priced and non-priced natural and environmental resources. Analysis of environmental and natural resource policy and the role of public and private agencies in conservation and development. May not be used for Degree Credit with AGEC 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4513 Farm Appraisal
Prerequisites: AGEC 3423.
Description: Estimating the market value of agricultural real estate using the three approaches to value - sales comparison, cost and income approaches. Analysis of sales to value the different characteristics of the farm. May not be used for Degree Credit with AGEC 5513.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Agricultural Economics

AGEC 4613 Advanced Agricultural Finance
Prerequisites: (AGEC 3603 or FIN 3113 with a grade of "B" or better), (ECON 3023 or ECON 3113), and (STAT 2013 or STAT 2023 or STAT 2053 or STAT 4013 or STAT 4053).
Description: Advanced time value of money and financial management concepts as applied to the management of agricultural firms. Incorporating risk into agricultural investment and financial management decisions. Introduction to risk modeling. May not be used for degree credit with AGEC 5603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4703 American Agricultural Policy
Prerequisites: ("C" or better in AGEC 3333), (MATH 2103 or MATH 2123 or MATH 2144), and (ECON 3023 or ECON 3113 or concurrent).
Description: Economic characteristics and problems of agriculture; evolution and significance of programs and policies. May not be used for Degree Credit with AGEC 5703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4723 Rural Economics Development
Prerequisites: AGEC 3213.
Description: Concepts, theories, and applications of regional and community economics, including the theories of economic development, analytic techniques, infrastructure and community services, targeted development and associated policies. Focus on domestic rural areas. May not be used for Degree Credit with AGEC 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 4990 Problems of Agricultural Economics
Prerequisites: Consent of instructor.
Description: Research on special problems in agricultural economics. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 5000 Master's Thesis/Report
Description: For students working on an MS degree in agricultural economics. Independent research and thesis under the direction and supervision of a major professor. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 5010 Professional Experience in Agricultural Economics or Agribusiness
Prerequisites: Approval of internship committee and advisor.
Description: Supervised professional experience with approved public and private employers in agricultural economics or agribusiness. Designed for Master of Agriculture program. Graded on pass-fail basis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 5013 Advanced Quantitative Methods in Agricultural Economics
Prerequisites: ("C" or better in AGEC 3213) and (MATH 2103 or MATH 2123 or MATH 2144).
Description: Quantitative analysis of agricultural production and markets including risk and uncertainty. Introduction to simulation. Development of statistical and software skills. Written presentation of an analysis of data. May not be used for degree credit with AGEC 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5023 Quantitative Supply Chain Management in Agribusiness
Prerequisites: ("C" or better in AGEC 3213) and (MATH 2103 or MATH 2123 or MATH 2144).
Description: Challenge in food supply chain management. Tools to solve logistics problems including traveling salesperson, vehicle routing, and distribution center problems. Forecasting sales and queuing theory. Introduction to specialized software used in supply chain management. May not be used for degree credit with AGEC 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5033 Commodity Futures Markets
Prerequisites: ("C" or better in AGEC 3213 and AGEC 3333).
Description: The economics of commodity futures markets. The vocabulary of futures markets and the mechanics of trading and hedging. Basis and producer marketing strategies. Fundamental analysis and statistical analysis of data. Technical analysis, behavioral finance, efficient market hypothesis and basics of option pricing. May not be used for degree credit with AGEC 4333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5043 Advanced Farm and Ranch Management
Prerequisites: ("C" or better in AGEC 3423) and (AGEC 3603 or concurrent).
Description: The development of problem solving and risk management skills needed on the modern farm or ranch. Use of spreadsheets to perform production planning and analysis of farm and ranch problems with linear programming, simulations, and other tools. Analysis of the acquisition of resources and the use of information systems in managing the individual farm or ranch business. May not be used for Degree Credit with AGEC 4403.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Agricultural Economics

AGEC 5053 Environmental Economics and Resource Development
Prerequisites: AGEC 3503 or ECON 3023 or ECON 3113 or consent of instructor.
Description: Economic, social, and political factors relating to conservation, natural resource development, and environmental quality. Valuation of priced and non-priced natural and environmental resources. Analysis of environmental and natural resource policy and the role of public and private agencies in conservation and development. May not be used for degree credit with AGEC 4503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5073 Rural Economics Development
Prerequisites: AGEC 3213.
Description: Concepts, theories, and applications of regional and community economics, including the theories of economic development, analytic techniques, infrastructure and community services, targeted development and associated policies. Focus on domestic rural areas. May not be used for degree credit with AGEC 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5101 Research Methodology
Prerequisites: Selection of a thesis advisor and a thesis topic.
Description: Using the scientific method to solve problems related to agriculture. Preparation of a thesis proposal required.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5103 Mathematical Economics
Prerequisites: (MATH 2103 or MATH 2123 or MATH 2144) and ECON 3113, all with minimum grade of "B".
Description: Mathematical tools necessary for formulation and application of economic theory and economic models.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5113 Applications of Mathematical Programming
Prerequisites: AGEC 5103 or AGEC 5403.
Description: The application of concepts and principles of existing linear and nonlinear programming techniques to agricultural problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5203 Advanced Agricultural Prices
Prerequisites: AGEC 5103, STAT 4043.
Description: Demand and price structures, price discovery, time series and agricultural price research methods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5213 Econometric Methods
Prerequisites: AGEC 5103 and ECON 4213 or STAT 4043.
Description: Application of econometric techniques to agricultural economic problems, theory and estimation of structural economic parameters.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5233 Primary Data Analysis in Economic Research
Prerequisites: AGEC 5213 or concurrent enrollment.
Description: Sampling theory and model-based hypothesis testing for the analysis and reporting of economic models of observational or experimental data. Introduction of classes of general linear models, including qualitative and limited dependent variable models, commonly used to analyze economic problems. Differences and commonalities between frequentist and Bayesian estimation methods and interpretation. Examples pertain to food and fiber markets and production agriculture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5303 Agricultural Market Policy and Organization
Prerequisites: ECON 3112, MATH 2103 or MATH 2144, and STAT 2023 or equivalent.
Description: Role of markets in the food system; Price variation across space, time, and form; Structure, conduct and performance of agricultural industries; Interregional trade theory; and government policies that influence decisions. Previously offered as AGEC 5311.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5321 Agricultural Marketing and Economic Development
Prerequisites: AGEC 5311.
Description: Role of marketing in economic development, focusing on international economics; role of institutions in a market economy.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5331 Agricultural Marketing: Advanced Concepts
Prerequisites: AGEC 5311.
Description: Advanced topics in price variation across space, time, and form. Market and firm efficiency. Market structure, conduct and performance; role of information in a market economy; and other selected topics.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5343 International Agricultural Markets and Trade
Description: Contemporary international agricultural trade theory and applications. Broaden students' understanding of contemporary cultural and economic issues outside the U.S. that affect global demand. Gains from trade and the theory of comparative advantage. No credit for students with credit in AGEC 4343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5403 Production Economics
Prerequisites: AGEC 5103, Minimum Grade: B, or Instructor permission.
Description: Analysis of micro-static production economics problems; factor-product, factor-factor and product-product relationships; functional forms for technical unit and aggregate production functions; maximizing and minimizing choice rules; firm cost structure; scale relationships.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5423 Agribusiness Management
Prerequisites: AGEC 3333 and (AGEC 3603 or concurrent).
Description: Application of quantitative analysis to the evaluation of business plans for agribusiness firms. Preparation of business plans, including mission statements, financial analyses, marketing plans, personnel and organization requirements of the firm, production and operations plans as well as a contingency plan. Analysis of risk factors associated with agriculturally-based companies. No credit for students with credit in AGEC 4423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5463 Advanced Agricultural Cooperatives
Prerequisites: AGEC 3463 or consent of instructor.
Description: Advanced understanding of cooperative business model and management skills. Advanced cooperative finance including profit center analysis, equity management, working capital management, budgeting and capital budgeting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5483 Bio-Energy Feasibility and Commercialization
Prerequisites: AGEC 1113 or ECON 2103.
Description: Feasibility and commercialization of bio-fuel and bio-based projects. Issues and processes in transitioning a project from pilot scale into commercialization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5503 Economics of Natural and Environmental Resource Policy
Prerequisites: AGEC 4503, ECON 3113, or ECON 3023; and MATH 2103.
Description: Economics of long-term resource use with particular emphasis on agricultural and environmental problems. Methods for estimation of nonmarket prices. Cost benefits analysis of long-term natural resource use and environmental policy. Elementary computer simulation of long-term resource use and environmental policy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5513 Farm Appraisal
Prerequisites: AGEC 3423.
Description: Estimating the market value of agricultural real estate using the three approaches to value - sales comparison, cost and income approaches. Analysis of sales to value the different characteristics of the farm. May not be used for degree credit with AGEC 4513.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Agricultural Economics

AGEC 5603 Advanced Agricultural Finance
Prerequisites: AGEC 3603 or FIN 3113, ECON 3023 or ECON 3113 and STAT 2023 or equivalent.
Description: Advanced investment and financial management concepts applied firms that operate in the agricultural sector. Incorporating uncertainty and risk into financial modeling and decision making via stochastic simulation and other tools. Risk/return tradeoff for stocks, portfolio management and business investments. May not be used for degree credit with AGEC 4613. Same course as AGEC 4613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5703 American Agricultural Policy
Prerequisites: ("C" or better in AGEC 3333), (MATH 2103 or MATH 2123 or MATH 2144), and (ECON 3023 or ECON 3113 or concurrent).
Description: Economic characteristics and problems of agriculture; evolution and significance of programs and policies. May not be used for degree credit with AGEC 4703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5713 Rural Regional Analysis
Prerequisites: AGEC 5103.
Description: Concepts of market and nonmarket based rural welfare; theories of regional growth as applied to rural areas; methods of regional analysis including computable general equilibrium; analysis of policies and programs for improving welfare of rural population groups.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5723 Plan & Pol Devlpmnt
Prerequisites: Master's-level microeconomics, macroeconomics and regression analysis.
Description: Economics of market-based planning and policy analysis for developing countries, topics and tools in macro- and microeconomics of development, and social cost-benefit and project analysis with emphasis on agricultural and public policy. Hands-on application of econometrics, input-output analysis and cost-benefit analysis using econometric software.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5733 Food Import Demand and Trade Policy
Description: Global welfare analysis of national food and agricultural trade and development policies of developed and developing countries. Analysis of import demand systems using real world data and incorporating economic and demographic variables.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5783 Bio-Energy Economics and Sustainability
Prerequisites: AGEC 1113 or ECON 2103.
Description: Economic issues related to supply chains producing bio-energy and bio-based products. Economic, sustainability and social dimensions of these industries. Triple bottom line objectives, life cycle analysis and the principles of feasibility analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 5990 Advanced Studies
Prerequisites: Consent of instructor.
Description: Investigation in designated areas of agricultural economics. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 6000 Doctoral Dissertation
Description: Open to students pursuing graduate study in agricultural economics beyond the requirements for a master's degree. Independent research and thesis under the direction and supervision of a major professor. Offered for variable credit, 1-15 credit hours, maximum of 24 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 6102 Teaching Practicum in Agricultural Economics
Prerequisites: Two semesters of graduate study in agricultural economics.
Description: Philosophies of resident and nonresident teaching, general tasks performed, review, evaluation and lecture organization, preparation and presentation.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 6103 Advanced Applications of Mathematical Programming
Prerequisites: AGEC 5103, AGEC 5113.
Description: General presentation of nonlinear optimization theory and methods followed by applications of nonlinear programming. Use of GAMS/MINOS optimization software package.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 6213 Advanced Econometrics
Prerequisites: AGEC 5213 or ECON 5243; STAT 4203 and AGEC 4213 recommended.
Description: Using advanced econometric techniques in applied research. Linear and nonlinear hypothesis testing; non-nested hypothesis tests; Monte Carlo hypothesis testing; stochastic simulation; misspecification testing. Extensive use of SAS statistical software package.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 6222 Spatial Econometrics
Description: Develop concept of spatial dependence. Introduce tools and techniques used to explore spatial dependence including spatial statistics and regression. Use of geographic information system (GIS) software in spatial analysis.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 6300 Agricultural Marketing Seminar
Prerequisites: Consent of instructor.
Description: Current developments in theory, techniques for evaluating marketing behavior, market legislation and market development. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 6303 Advanced Agricultural Marketing
Prerequisites: AGEC 5303.
Description: Marketing theory, market structure and performance, governmental regulation and policy and bargaining in agricultural markets.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 6400 Seminar in Farm Management and Production Economics
Prerequisites: AGEC 5403 or consent of instructor.
Description: Scientific research methodology applied to problems of resource efficiency. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Agricultural Economics

AGEC 6403 Advanced Production Economics
Prerequisites: AGEC 5403.
Description: Formulating and solving applied economic optimization problems in agricultural production economics. Expected profit maximization; analyzing data from agronomic experiments; credit scoring; risk models such as stochastic dominance and expected utility.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Agricultural Economics

AGEC 6700 Agricultural Policy and Rural Resource Development Seminar
Description: Frontier issues in agricultural policy, natural resources and rural development. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Agricultural Economics

Agricultural Education (AGED)

AGED 2011 Topics and Issues in Agricultural Education
Description: An exploration into the world of teaching secondary agricultural education with a focus on the role and purpose of the comprehensive agricultural education program. Observation of teachers in an experiential manner by actively interviewing agricultural education teachers, school principals, and appropriate state staff; assisting with FFA activities; and observing students' SAE opportunities.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 3101 Laboratory and Clinical Experiences in Agricultural Education
Description: Preprofessional clinical experiences in agricultural education teaching and related careers. Requirement for admission to professional education, student teaching, and internships. Previously offered as AGED 3510.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 3103 Foundations and Philosophies of Teaching Agricultural Education
Prerequisites: 21 semester credit hours of agriculture with a 2.50 GPA.
Description: Roles and responsibilities of the agricultural education teacher; types of program offerings; steps of the teaching-learning process; place of agricultural education in relation to other educational programs in school systems.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGED 3201 Planning and Conducting Agricultural Youth Organization Events
Description: A service-learning course focused on the processes and procedures required to host competitive events for agricultural youth organizations. Emphasis on roles of event hosts such as planning, coordination, volunteer management, and facilitation.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 3203 Advising Agricultural Student Organizations and Supervising Experiential Learning
Prerequisites: AGED 3103.
Description: Determining resources and trends of local communities with respect to agricultural production and agribusiness. Emphasis on agricultural education program policies, FFA chapter advisement, planning and managing the instructional program, identification and completion of records and reports required of a teacher of agricultural education in Oklahoma. May not be used for degree credit with AGED 5323.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGED 4103 Methods of Teaching Agricultural Education
Prerequisites: AGED 3101 and AGED 3203.
Description: Facets of the teaching and learning process including teaching methods, basic teaching skills, proper classroom management techniques, and motivational techniques and ideas. Preparation for student teaching.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGED 4113 Inquiry Based Instruction in Agricultural Education
Prerequisites: AGED 3103
Description: Inquiry-based instruction in agricultural education to prepare future school-based agricultural education teachers to teach inquiry-based science, technology, engineering, and math (STEM) curriculum.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGED 4200 Student Teaching in Agricultural Education
Prerequisites: AGED 4103; EPSY 3213 or EPSY 3413; SPED 3202; Concurrent enrollment in AGED 4113; full admission to the University Professional Education program.
Description: Full-time directed experience in an approved agricultural education department. Applications of methods and skills in agricultural education as related to selecting, adapting, utilizing, and evaluating curriculum materials and experiences to meet educational goals and facilitate learning for individual students. Roles, responsibilities, and organization and operation of school systems. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGED 4203 Professional Development in Agricultural Education
Prerequisites: AGED 4103; EPSY 3213 or EPSY 3413; SPED 3202.
Description: Professional preparation and development for careers as agricultural educators. Professional correspondences, interviewing, networking, and other employability skills. Reflection and evaluation of instruction, project supervision and advising of youth leadership development organizations. May not be used for degree credit with AGED 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 4300 Agricultural Education Internship
Prerequisites: Consent of instructor.
Description: Supervised internship experience with approved enterprises in agriculture, natural resources, and/or youth development. Regular written reports and final presentation required. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGED 4713 International Programs in Agricultural Education and Extension (G)
Description: World hunger and its root causes. The function of international agencies, organizations, foundation and churches in improving the quality of life for people of the developing nations. Roles of agricultural education and extension at all levels for enhancing the effectiveness of indigenous programs of rural development and adult education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership
General Education and other Course Attributes: International Dimension

AGED 4990 Seminar and Problems in Agricultural Education
Description: Small group and/or individual study and research in problems relating to programs of occupational education in agriculture. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGED 5102 Creative Component in Agricultural Education
Prerequisites: AGED 5983 or equivalent; consent of instructor.
Description: Independent research or project management under the direction and supervision of a major adviser.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 5123 Adult Programs in Agricultural and Extension Education
Description: Determining adult needs, priorities, participation in educational activities, and adoption of new ideas and practices. Designing, organizing, conducting, and evaluating adult education programs in agricultural and extension education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 5203 Grant Seeking
Prerequisites: Graduate standing or consent of instructor.
Description: External funding proposal development for foundation and government agencies. Conceptualizing projects, identifying funding sources, and develop proposals that follow RFP guidelines including a literature review, need for the project, approach, timeline and budget. Previously offered as AGED 5202.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 5300 Extension Tchg Meth
Credit hours: 1-24
Contact hours: Lecture: 1-24 Contact: 1-24
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 5311 Laboratory and Clinical Experiences in Agricultural Education for Graduate Students
Prerequisites: Graduate Standing.
Description: Preprofessional clinical experiences in agricultural education teaching and related careers. Study of research literature related to school-based agricultural education. Requirement for admission to professional education and student teaching. For graduate students pursuing teacher certification.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 5313 Foundations and Philosophies of Teaching Agricultural Education for Graduate Students
Prerequisites: Graduate Standing.
Description: Study of educational philosophers impacting school-based agricultural education, roles and responsibilities of the agricultural education teacher, types of program offerings, steps of the teacher-learning process, and the place of agricultural education in relation to other educational programs in school systems. For graduate students pursuing teacher certification. Same course as AGED 3013.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGED 5323 Advising Agricultural Student Organizations & Supervising Experimental Learning for Graduate Student
Prerequisites: Graduate Standing.
Description: Determining resources and trends of local communities with respect to agricultural production and agribusiness. Emphasis on agricultural education program policies, FFA chapter advisement, and supervision of experiential learning projects. Development of project for teaching agriculture. For graduate students pursuing teacher certification. Same course as AGED 3203.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGED 5333 Methods of Teaching Agricultural Education for Graduate Students
Prerequisites: Graduate standing.
Description: Facets of the teaching and learning process with an emphasis on the identification and integration of teaching methods in the school-based agricultural education curriculum. Preparation for the student teaching internship. For graduate students pursuing teacher certification. Includes exploration and application of research about teaching school-based agricultural education. Previously offered as AGED 5103.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Ag Ed, Comm & Leadership

AGED 5343 Professional Development in Agricultural Education
Prerequisites: AGED 4103; EPSY 3213 or EPSY 3413; SPED 3202.
Description: Professional preparation and development for careers as agricultural educators. Professional correspondences, interviewing, networking, and other employability skills. Reflection and evaluation of instruction, project supervision and advising of youth leadership development organizations. May not be used for degree credit with AGED 4203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 5500 Directing Programs of Supervised Experience
Prerequisites: Consent of instructor.
Description: Determining the supervised training needs and opportunities of individual students. Planning for supervision of agricultural education training programs and 4-H club projects. Analysis of training opportunities in production agriculture, agricultural businesses and individual career development. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGED 5623 Volunteer Management in Agricultural and Extension Education
Prerequisites: Graduate standing.
Description: Concepts, theories and practices relevant to the management of volunteers with an emphasis on recruiting, managing, and training in formal or non-formal educational settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 5703 Cultural Competency for Working in Agricultural and Extension Education
Prerequisites: Graduate standing.
Description: Examination of strategies to increase intercultural intelligence, and cultural competence. Focus on concepts of cultural values and stereotypes, intercultural sensitivity, cultural differences, cultural transitions, and intercultural theories for agricultural and extension educators.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 5813 College Teaching of Agriculture and Natural Resources
Prerequisites: Consent of instructor.
Description: Facets of the teaching-learning process used to teach agriculture and natural resources in higher education including teaching methods, instructional skills, application of instructional technology, student motivation, and evaluation of learning. Previously offered as AGED 6120.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership
Additional Fees: IDEA Tuition (AG) fee of $622 per credit hour applies.

AGED 5823 Advanced Methods of Teaching Agriculture
Description: Advanced concepts and methods relevant for both formal and informal presentations. Effects methods may have on individuals involved in the learning experience. Demonstrations of proficiency in use of various advanced methodologies, technologies and concepts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGED 5900 Graduate Internship in Agriculture
Prerequisites: Admission to Master of Agriculture program; consent of graduate coordinator.
Description: Supervised internship in agricultural education, government agency, industry, Cooperative Extension, or not-for-profit organizations. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGED 5990 Problems in Agricultural and Extension Education
Description: Securing and analyzing data related to special problems or investigation in designated areas of agricultural education. Offered for variable credit, 1-3 credit hours, maximum of 8 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGED 6103 History and Philosophical Foundations of Agricultural and Extension Education
Prerequisites: Graduate standing.
Description: History and philosophical foundations of agricultural and extension education. Philosophy and its role in life, rise of education in America, philosophical foundations of education in America, legislation having an impact on agricultural and extension education, education in agriculture and current issues in agricultural extension education. Previously offered as AGED 5820.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

Agricultural Education, Communications, and Leadership (AECL)

AECL 1101 Orientation to Agricultural Education, Communications and Leadership
Description: Introduction and orientation to areas of study, professional activities, and career opportunities in agricultural education, communications, and leadership.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 4003 Developing Rural Scholars for Civic and Community Engagement
Description: Knowledge and skills to effectively serve rural citizens and conduct community-engaged research. Place-based research allows exploration of unique challenges and opportunities of rural communities, analysis of existing research, and development of innovative approaches to address community needs. Combination of classroom discussions, fieldwork, and community-based projects to gain understanding of rural contexts. May not be used for degree credit with AECL 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 4800 International Study Tour in Agricultural Education, Communications and Leadership (G)
Prerequisites: Consent of instructor.
Description: An experiential learning course featuring an international travel component. Provides an integrated approach to studying the agriculture, communication, education, natural resources, culture, history, government, economy, and religion of a particular region. Special emphasis placed up on formal and informal educational programs and/or communications focusing on agriculture and natural resources. Previously offered as AGED 4803. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership
General Education and other Course Attributes: International Dimension

AECL 5000 Master's Thesis/Report in Agricultural Education, Communications and Leadership
Prerequisites: Approval of adviser.
Description: Independent research planned, conducted and reported in consultation with and the direction of a major professor for students pursuing a master's degree in agricultural education, communications and leadership. Previously offered as AGED 5000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AECL 5003 Developing Rural Scholars for Civic and Community Engagement
Description: Knowledge and skills to effectively serve rural citizens and conduct community-engaged research. Place-based research allows exploration of unique challenges and opportunities of rural communities, analysis of existing research, and development of innovative approaches to address community needs. Combination of classroom discussions, fieldwork, and community-based projects to gain understanding of rural contexts. May not be used for degree credit with AECL 4003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 5101 Orientation to Graduate Programs in Agricultural Education, Communications and Leadership
Description: Orientation to graduate programs in agricultural education and communications including degree expectation, understanding scholarship, orientation to the discipline, introduction to research agendas, and identification of support systems. Previously offered as AGED 5101.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 5201 Faculty Preparation in Agricultural Sciences and Natural Resources Seminar Series
Prerequisites: Graduate Standing
Description: Seminar for students interested in a faculty career, particularly at a land-grant university. Develops understanding of the faculty process at colleges and universities, including preparation for application and interview processes, and tools for early career success.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 5800 International Study Tour in Agricultural Education, Communications and Leadership
Prerequisites: Consent of instructor.
Description: Experiential learning course for graduate students featuring an international travel component. Provides an integrated approach to studying the agriculture, communication, education, natural resources, culture, history, government, economy, and religion of a particular region. Special emphasis placed upon formal and informal educational programs and/or communications focusing on agriculture and natural resources. Previously offered as AGED 5803. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 5863 Methods of Technological Change
Description: Processes by which professional change agents influence the introduction, adoption, and diffusion of technological change. Applicable to persons who work closely with people in formal and non-formal educational settings. Previously offered as AGED 5863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 5983 Social Sciences Research in Agricultural Sciences and Natural Resources
Description: Research methods presented in support of decision-making in a scientifically literate world. Literature, logic and research approaches in quantitative and qualitative paradigms. Context is the social sciences associated with agricultural sciences and natural resources. Addresses preparation of proposals for theses, dissertations, formal reports, and creative components. Previously offered as AGED 5983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 5993 Social Sciences Data Analysis and Interpretation in Agricultural Sciences and Natural Resources
Prerequisites: Graduate courses in research methods and social sciences statistics.
Description: Study and application of various approaches used to analyze data associated with social sciences research in the context of agricultural sciences and natural resources. Previously offered as AGED 5993.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 6000 Doctoral Dissertation in Agricultural Education, Communications and Leadership
Prerequisites: Approval of adviser.
Description: Independent research planned, conducted and reported in consultation with and the direction of a major professor. Open only to students pursuing graduate study beyond the master's degree level. Offered for variable credit, 1-16 credit hours, maximum of 16 credit hours. Previously offered as AGED 6000.
Credit hours: 1-16
Contact hours: Contact: 1-16 Other: 1-16
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AECL 6063 Research Applications with Q Methodology
Description: Research applications using qualitative, quantitative and Q methodology. Subjectivity and abductive reasoning explored with a limited research project. Professional research skills, including ethics, process, team research and manuscript development. Previously offered as EPSY 6063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 6100 Graduate Seminar in Agricultural Education, Communications and Leadership
Prerequisites: Graduate standing.
Description: Discussion of issues, problems and trends in agricultural education, communications and leadership. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AECL 6223 Program Evaluation in Agriculture and Extension
Prerequisites: Graduate standing.
Description: Program evaluation theory and methodology applied to agricultural and extension contexts. Previously offered as AGED 6220 and AGED 6223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership
Additional Fees: IDEA Tuition (AG) fee of $622 per credit hour applies.

AECL 6363 Experiential Learning Theory in Agricultural Settings
Description: Experiential learning as both educational theory and pedagogical practice. Review of seminal literature, empirical research, and historical documents related to experiential learning theory. Experiential learning application in educative agricultural settings through classroom-based lessons, project-based learning, service learning, guided inquiry, field trips, internships/externships, study abroad, and outdoor/adventure learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AECL 6983 Qualitative Research Methods in Agriculture and Natural Resources
Prerequisites: Graduate standing and AECL 5983 or AGED 5983 or other graduate level social science research methods course.
Description: A comprehensive examination of qualitative research methods including identifying a problem, data collection, interpretative analysis, ensuring trustworthiness, theory construction and reporting. Previously offered as AGED 5303, AGLE 5303, AGED 5940, and AGED 6983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

Agricultural Leadership (AGLE)

AGLE 1511 Introduction to Leadership in Agricultural Sciences and Natural Resources
Description: Introduction to the concept of leadership as a field of study. Emphasis placed on the application of acquired knowledge to practical problems. Previously offered as AGED 1511.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 2303 Agricultural Leaders in Society (S)
Description: Analysis of agricultural leaders and societal impacts. Theories of authentic leadership and values-based leadership. Organizational, community, and workforce changes including diversity, technology, and globalization and the relationship to leader behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership
General Education and other Course Attributes: Society & Human Behavior

AGLE 2403 Agricultural Leadership in a Multicultural Society (DS)
Description: The study of leadership as it relates to a multicultural society. Cultural changes in the agricultural workplace and future impact on the industry. Personal barriers to fulfilling leadership roles in the agricultural sciences and natural resources. Skills related to managing teams in a diverse workplace specifically related to differences in gender, race and ethnicity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership
General Education and other Course Attributes: Diversity, Society & Human Behavior

AGLE 3101 Introduction to Agricultural Leadership
Prerequisites: Major in AGLE or consent of instructor.
Description: Exploring leadership in the context of agriculture. Specific topics will include authentic leadership, independent thinking, commitment to agriculture, open minds and professionalism. Graded on a pass/fail basis.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 3303 Agricultural Leadership: Theory and Practice
Description: A study of the concepts and theories of leadership with emphasis on the development of leadership abilities in the individual for different group situations. Previously offered as AGED 3303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 3333 Applied Leadership Theory in Agricultural Settings
Prerequisites: Prerequisite or co-requisite enrollment in AGLE 3303.
Description: Examines current agricultural challenges through a leadership lens. Students explore key issues, discuss leadership implications, and apply leadership theories to real-world agricultural contexts. Previously offered as AGED 3333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 3403 Leading Community Change in Agriculture
Description: Implementation of collaboration and team leadership to execute a service-learning experience aimed at leading change in community and organizational settings. Previously offered as AGED 3403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 3503 Introduction to Cooperative Extension
Description: Cooperative Extension mission, philosophy, history, organization, structure, administration, and program areas. Extension program development, Extension teaching and delivery methods, and the involvement and use of volunteers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 3803 Global Leadership in Agriculture (G)
Description: Contemporary global leadership in the context of agriculture. Challenges, cross-cultural conflict, managing diversity, and ethical behavior. Exploration of global leaders including Africans, Asians, Europeans, and Middle Easterners.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership
General Education and other Course Attributes: International Dimension

AGLE 4201 Professional Development in Agricultural Leadership
Prerequisites: AGLE major and junior standing and AGLE 3101 and AGLE 3303.
Description: Preparation of professionals in agricultural business and industry and related areas who have career goals directed toward service, leadership, management, communications, production, processing, marketing, and education outside the public school setting. Development of professionalism through relationship building, networking, interviews, community involvement, business correspondence, websites and the resume. Previously offered as AGED 4203 and AGLE 4203.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 4300 Agricultural Leadership Internship
Prerequisites: AGLE 4201 with minimum grade of D or concurrent enrollment.
Description: Supervised full-time internships in agriculture, leadership, youth, or community development in professional settings. Provides immersive experiences developing technical expertise and leadership growth while equipping students with skills, knowledge, and professional connections to pursue or advance a career. Requires written reports and a final presentation. Four hours are required for degree. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours may apply toward degree. Previously offered as AGED 4300.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGLE 4301 Seminar in Leadership Education
Prerequisites: AGLE major and co- or pre-requisite enrollment in AGLE 4201 and co- or pre-requisite enrollment in AGLE 4300.
Description: Evaluation of the internship experience and further application of leadership concepts to the internship experience and future career goals. Previously offered as AGLE 4101 and AGED 4101.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 4303 Facilitating Leadership Education Programs
Prerequisites: AGLE 2303, AGLE 3303.
Description: Identification and application of methods and techniques for teaching leadership education programs in formal and non-formal educational settings. Focus on using experiential methods of teaching leadership.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 4403 Land & Legacy: African American Contributions to U.S. Agriculture
Description: Examines leadership through the lens of African American experiences in U.S. agriculture from 1619 to the present. Students will engage with leadership theories such as Servant, Transformational, Adaptive, Systems Thinking, Diffusion of Innovations, Authentic, and Ethical Leadership to explore how African Americans have led, innovated, and sustained communities across generations. May not be used for degree credit with AGLE 5403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Education Comm & Leadership

AGLE 4803 International Agricultural Leadership Tour
Description: An experiential approach to the study of contemporary culture, agriculture, and leadership in a region outside the United States. Contemporary leadership of the region and implications related to agriculture. Comparison of leadership and agricultural practices in the designated region to that of the United States. Includes a two-week international travel component.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 4990 Problems in Agricultural Leadership
Prerequisites: Consent of instructor.
Description: Small group and/or individual study and research in problems related to agricultural leadership. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGLE 5102 Creative Component in Agricultural Leadership and Extension Education
Prerequisites: Consent of instructor.
Description: Independent project under the direction and supervision of a major advisor. Creative component projects address an agricultural leadership and/or extension education issue with the goal to inform or improve practice based upon scholarship. Open to students pursuing a Master of Agriculture degree (M.Ag.) with an option in Agricultural Leadership.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGLE 5303 Foundations of Leadership Theory
Description: Study of leadership theory including definitions of leadership, a history of modern leadership theory, and current trends in leadership practice and research. Models of leadership including contingency models, situational leadership and transformational leadership. Previously offered as AGED 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 5353 Leadership in Agriculture
Prerequisites: AGLE 5303 or consent of instructor.
Description: Concepts, principles, and philosophies of leadership applied to agricultural contexts. Importance of traits, perceptions, and behaviors to success of agricultural professionals in leadership roles. Dimensions and style of leadership for varying situations. Previously offered as AGED 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

AGLE 5403 Land & Legacy: Advanced Concepts in African American Contributions to U.S. Agriculture
Prerequisites: Graduate standing
Description: Graduate-level examination of leadership through the lens of African American experiences in U.S. agriculture from 1619 to the present. Students will engage with leadership theories such as Servant, Transformational, Adaptive, Systems Thinking, Diffusion of Innovations, Authentic, and Ethical Leadership to explore how African Americans have led, innovated, and sustained communities across generations. May not be used for degree credit with AGLE 4403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Education Comm & Leadership

AGLE 5990 Problems in Agricultural Leadership and Extension Education
Prerequisites: Consent of instructor.
Description: Investigation in designated areas of agricultural leadership and/or extension education. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Ag Ed, Comm & Leadership

AGLE 6203 Extension Program Development
Description: A systematic study of the history, culture and functions of the Cooperative Extension System in America. Focus on program planning, including needs assessments, involvement of local constituent groups, use of the logic model, teaching methods, program evaluations, marketing and planning for the future. Previously offered as AGED 6200.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Ag Ed, Comm & Leadership

Agricultural Systems Technology (AST)

AST 1413 Introduction to Engineering in Agriculture
Prerequisites: MATH 1513 or concurrent enrollment.
Description: Application of the physical and engineering sciences to agricultural problems. Energy; energy conversion; thermal, electrical, mechanical and fluid systems; equipment calibration; environmental control of agriculture buildings and irrigation system requirements. Previously offered as MCAG 1413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

AST 2313 Surveying
Prerequisites: MATH 1613 or MATH 1583 or MATH 2103.
Description: Equipment and practices used in surveying small areas. Common practices of plane surveying: differential, profile, and topographic leveling; field notes, accuracy and precision, error and error control, and introduction to global positioning systems for land measurement. Previously offered as MCAG 2313.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

AST 3011 Ag Structures
Prerequisites: MATH 1513.
Description: Study of types of agricultural structures, building materials, construction tools and methods. Laboratory will provide opportunity to apply and develop associated skills. Previously offered as MCAG 3011.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Biosystems & Ag Eng

AST 3103 Electrical Power and Industrial Control in Agriculture
Prerequisites: MATH 1513 or MATH 2103 or MATH 2123 or MATH 2144
Description: Principles, function, design, operation, and safe application of electrical components and industrial control systems commonly used for agricultural applications. Topics include AC/DC circuit design, analysis and safety; single-phase and three-phase AC motors, variable frequency drives, relays and logic circuits; electrical generation, transmission and storage; power factor correction and billing. Previously offered as AST 3102.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

AST 3211 Engines and Power
Prerequisites: MATH 1513.
Description: Theory, operation, performance and diagnostics of internal combustion engines for mobile applications. Previously offered as MCAG 3211.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Biosystems & Ag Eng

AST 3222 Metals and Welding
Description: Welding safety and the principles and applications of gas, stick and MIG welding, and cutting. Previously offered as MCAG 3223 and MCAG 3222.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

AST 3232 Lab Management and Project Construction
Prerequisites: MCAG 3222.
Description: Theory and practice of managing secondary school Ag Mechanics laboratories including safety, organization, design, project construction and evaluation of student projects. Previously offered as MCAG 4223 and MCAG 3232.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

AST 4013 Capstone for Agricultural Systems Technology
Prerequisites: Senior standing and AST 4303 and AGEC 3423.
Description: Application of problem solving skills on team-based professional projects involving agricultural technology.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

AST 4101 Ag Electrification
Prerequisites: MATH 1513.
Description: A study of electrical theory and electrical applications in agricultural environments. Previously offered as MCAG 4101.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Biosystems & Ag Eng

AST 4112 Land Measurement and Site Analysis
Prerequisites: MATH 1513
Description: Methods and techniques used to locate sites and evaluate physical conditions. Includes map interpretation and land description, use of Global Positioning Systems, Rectangular System of Land Description and determination of land elevations, areas and slopes. Previously offered as MCAG 3311, MCAG 4112, and ENVR 4112.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

AST 4123 Principles of Food Engineering
Prerequisites: MATH 1513.
Description: For non-engineers. Application of the engineering approach to solving heat and mass transfer problems in food processing. An introduction to the basic concepts of the conservation laws, fluid flow, heat transfer, refrigeration, freezing, psychrometrics, and energy conservation. Same course as FDSC 4123. Previously offered as MCAG 4123. May not be used for Degree Credit with AST 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

AST 4200 Topics in Agricultural Systems Technology
Description: Investigations in specialized areas of mechanized agriculture. Previously offered as MCAG 4200. May not be used for Degree Credit with AST 5200. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

AST 4203 Agricultural Water Management
Prerequisites: MATH 1513 or MATH 2103
Description: Basic concepts and applications involved in sustainably managing water in agricultural applications. Topics covered include principles, function, design, operation, and application of agricultural water management, soil-water-plant relationships, irrigation water supplies, characteristics and selection of irrigation systems, selection of pumps, irrigation scheduling and efficiency, and environmental impacts. Previously offered as MCAG 4203. SOIL 2124 recommended as a prerequisite.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

AST 4213 Safety and Health in Agriculture
Prerequisites: Junior standing or above.
Description: Causes and prevention of accidents in agriculture; acute and chronic risks of machinery, animals, gases, confined spaces, and hazardous materials; understanding of current OSHA and NIOSH requirements and regulations. Previously offered as MCAG 4212 and AST 4212.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

AST 4220 Advanced Methods in Agricultural Systems Technology
Description: Developing agricultural mechanics programs for vocational agriculture and technical schools. Application of agricultural mechanics methods, practices and skills to advanced projects. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lab: 2-12 Contact: 3-18 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study, Lab, Combined lab & IS
Department/School: Biosystems & Ag Eng

AST 4303 Automation, Sensors and Controls for Agricultural Systems
Prerequisites: (MATH 2103 or MATH 2123 or MATH 2144) and AST 3103.
Description: Principles of sensors, controllers, actuators, data communication networks and interface electronics applied to agricultural, food and natural systems.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

AST 5123 Principles of Food Engineering
Prerequisites: MATH 1513.
Description: For non-engineers. Application of the engineering approach to solving heat and mass transfer problems in food processing. An introduction to the basic concepts of the conservation laws, fluid flow, heat transfer, refrigeration, freezing, psychrometrics, and energy conservation. May not be used for degree credit with AST 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

AST 5200 Topics in Agricultural Systems Technology
Description: Investigations in specialized areas of mechanized agriculture. May not be used for degree credit with AST 4200. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

Agriculture (AG)

AG 1011 First Year Seminar
Description: Learning strategies, student success resources, advisement systems, co-curricular opportunities, degree requirements and career opportunities in various fields of agricultural sciences and natural resources. Required of all freshmen in the College of Agricultural Sciences and Natural Resources. Same course as UNIV 1111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AG 1111 Career Exploration in Agricultural Sciences and Natural Resources
Description: Application of the career planning cycle and detailed exploration of career opportunities in the agricultural industry and natural resources field.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AG 2890 Special Topics in Agricultural Sciences and Natural Resources
Prerequisites: Consent of instructor.
Description: Individual and small group study or research in agricultural sciences and natural resources topics and issues. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AG 3010 Internships in Agriculture
Prerequisites: Junior standing or consent of instructor.
Description: Supervised internships with business, industry or governmental agencies, including cooperating veterinarians. Graded on pass-fail basis, but some sections may utilize standard grading (A-F). Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

AG 3011 Transfer Seminar in Agricultural Sciences and Natural Resources
Description: Resources, strategies and skills to facilitate transfer student success including academic advisement processes, university policies, degree completion plans, co-curricular opportunities and career connections. Professional networking and personal skill set development to support career objectives in agricultural sciences and natural resources.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AG 3080 International Experience
Prerequisites: Consent of the associate dean of the college.
Description: Participation in a formal or informal educational experience outside of the USA. Offered for variable credit, 1-18 credit hours, maximum of 36 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

AG 3090 Study Abroad (G)
Prerequisites: Consent of the Study Abroad office and associate dean of the college.
Description: Participation in an OSU reciprocal exchange program. Offered for variable credit, 1-18 credit hours, maximum of 36 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Agriculture
General Education and other Course Attributes: International Dimension
Additional Fees: Study Abroad fee of $250 applies.

AG 3111 Career Planning and Skill Development
Description: In-depth application of career research and literature to the internship search, full-time job search, and graduate school application and decision-making processes, as related to the agricultural industry and natural resources field.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AG 3803 Study Abroad Course in Agriculture and Natural Resources (G)
Prerequisites: Consent of instructor.
Description: A two-three week international travel component. An integrated approach to the study of agriculture, natural resources, culture, history, and technological advance of a region.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture
General Education and other Course Attributes: International Dimension

AG 4010 Honors Seminar
Description: Role of agriculture in society and adjustments to change in the economy. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Agriculture
General Education and other Course Attributes: Honors Credit

AG 4013 Preparation for Honors Thesis Research
Prerequisites: Honors Program participation, senior standing, instructor approval.
Description: A guided reading and research program in preparation for an honors thesis research project under the direction of a faculty member. Required for graduation with college honors in agriculture.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Agriculture
General Education and other Course Attributes: Honors Credit

AG 4023 Senior Honors Thesis
Prerequisites: AG 4013, Honors Program participation, senior standing, instructor approval.
Description: A guided reading and research program ending with an honors thesis under the direction of a faculty member, with second faculty reader, oral examination, and public presentation of thesis findings. Required for graduation with college honors in agriculture.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Agriculture
General Education and other Course Attributes: Honors Credit

AG 4890 Special Topics in Agricultural Sciences and Natural Resources
Prerequisites: Consent of instructor.
Description: Individual and small group study or research in agricultural sciences and natural resources topics and issues. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

AG 4990 Special Problems in International Agriculture and Natural Resources
Prerequisites: Consent of instructor.
Description: A two-three week international travel component. An integrated approach to the study of agriculture, natural resources, culture, history, and technological advance of a region. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

AG 5090 Study Abroad
Prerequisites: Graduate student standing, Consent of the Study Abroad office and associate dean of the college.
Description: Participation in an OSU reciprocal exchange program. Offered for variable credit, 1-12 credit hours, maximum of 24 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

American Indian Studies (AMIS)

AMIS 1000 Special Topics in American Indian Studies
Description: Selected introductory American Indian Studies topics presented in lecture or seminar format. Offered for variable credit, 1-5 credit hours, maximum of 8 credit hours.
Credit hours: 1-5
Contact hours: Lecture: 1-5 Contact: 1-5
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

AMIS 2013 Introduction to American Indian Studies (D)
Description: This course is designed to present an indigenous perspective to explore both the historical and contemporary issues facing Native American people. The course examines the history and development of American Indian Studies as an academic discipline and provides an introduction to the field of employing a broad interdisciplinary approach. A range of topics are covered, including Native history, sociology, art/culture, literature, geography, law, and entrepreneurship.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity

AMIS 3713 Native American Entrepreneurship (D)
Description: Analysis and presentation of economic issues specific to American Indian tribes, business enterprises, and entrepreneurial ventures in Indian country - emphasizing the important distinction of American Indians as sovereign nations. This course offers a wide variety of opportunities for learning, including in-class exercises, class projects, and American Indian guest speakers with a range of business backgrounds and entrepreneurial experience (e.g., tribal and private enterprises). Previously offered as EEE 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity

AMIS 4000 Independent Study in American Indian Studies
Description: In-depth discussion of topics and issues in American Indian Studies. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: History

AMIS 4013 American Indian Sovereignty (D)
Description: Critically analyzes historical and contemporary experiences of American Indians in society. Examines the importance of tribal sovereignty for the socio-political, cultural, and religious rights of Native people. Federal Indian law provides a context for understanding historical indigenous experience and informs understanding of the Native American perspective. Explores contemporary sovereignty issues and proposed solutions that impact American Indians in relation to broader American culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity

American Sign Language (ASL)

ASL 1713 American Sign Language I (F)
Description: Introduction to American Sign Language: development of receptive and expressive skills in authentic situations and an introduction to Deaf Culture; fingerspelling, numbers, classifiers, and facial expressions. Not for native speakers per University Academic Regulations 4.9. Previously offered as ASL 1115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 1813 American Sign Language II (F)
Prerequisites: ASL 1713 or equivalent proficiency.
Description: Continuation of ASL 1713, further development of receptive and expressive skills in authentic situations and study of Deaf Culture. Learners are required to attend functions within the Deaf Community and focus on the different accents within sign language. Not for native speakers per University Academic Regulation 4.9. Previously offered as ASL 1225.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 2713 American Sign Language III (F)
Prerequisites: ASL 1813 or equivalent proficiency.
Description: This course is designed to provide a development of skills in non-verbal communications and increased understanding of the types and uses of classifiers in ASL. Emphasizes the use and understanding of facial expression, gestures, pantomime, and body language. Students will develop further abilities to utilize this component of ASL in their expressive and receptive signing abilities. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 2723 American Deaf Culture (D)
Description: This course provides an analysis of the development and historical overview of Deaf culture in the United States. Topics include education of the D/deaf; Deaf Films, theaters, arts, and clubs; preservation of American Sign Language; technology and services in the Deaf community. The student's acculturation process is facilitated by active participation in the Oklahoma Deaf community. This course will be voiced/taught in English. Same course as LL 2723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Diversity

ASL 2813 Intermediate Grammar
Prerequisites: ASL 2713 or equivalent proficiency.
Description: This course delves into the grammatical structures in ASL; work on developing receptive skills for voicing. Continued work on production of ASL that includes pronominalization, classifiers and locatives, distributional, temporal, pluralization, and grammatical structures. Students will view and analyze ASL stories, and be required to go out to the community to gain further understanding of these issues firsthand. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 2823 Cultural Diversity in the Deaf Community
Prerequisites: ASL 2723 or equivalent proficiency.
Description: This course covers ethnic and cultural diversity within the American Deaf community specifically. Deaf people of color. Students explore how biases and stereotypes form, do self-analysis and consider how these factors may impact their work as Deaf interpreters. Students also research a variety of organizations representing Deaf ethnic and cultural groups further developing their individual resources. Also examined are societal attitudes regarding disability in general and hearing loss and communication difficulties in particular.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 3113 Cognitive Processing
Prerequisites: ASL 2813 or equivalent proficiency.
Description: This course introduces cognitive processes of communication. Cognitive processing underlies some of the more complex aspects of simultaneous interpreting. Topics to be covered in the course include language and intralingual skills, memory, comprehension, and routinization of complex cognitive linguistic tasks. Students will develop further abilities to utilize this component of ASL in their expressive and receptive signing abilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 3123 Translation
Prerequisites: ASL 3113 or equivalent proficiency.
Description: This course focuses on developing translation skills. Translation skills are critical in delivering message equivalence between languages. Emphasis will be on preparing to translate, interlingual meaning transfer, target language form, framing the cognitive interpreting process, and norms of diverse linguistic populations. The translation skills acquired from this course serve as a foundation for consecutive and simultaneous interpreting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 3500 Interpreting Special Areas
Prerequisites: Consent of instructor.
Description: Instruction and/or tutorial work in American Sign Languages other than those offered in the major program. Offered for variable credit, 1-6 credit hours, maximum of 20 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

ASL 3713 Introduction to Interpreting
Prerequisites: ASL 2813 or equivalent proficiency.
Description: An introduction to the profession of sign language interpreting, which includes an overview of the history of interpreting and interpreting and interpreting organizations, the roles and responsibilities of the interpreter, an overview of various work venues, and a study of skills required to express communication without the spoken word using facial expression, body language, and gestures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 3723 Science, Technology, Engineering, and Math I
Prerequisites: ASL 2813 or equivalent proficiency.
Description: This course is designed to teach vocabulary and concepts about topics within the primary and early secondary educational STEM settings. Students will learn about applicable laws for K-12 interpreting, resources for STEM, Deaf education in K-12, and introduction to the field's standard practice of educational interpreting. The course will have project-based and problem-based learning activities. The course will help prepare students who seek to enter the K-8th public school system as sign language interpreters or Deaf education teachers. This course will be taught in ASL.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 3733 Consecutive Interpreting
Prerequisites: ASL 3713
Description: This course focuses on developing consecutive interpreting skills from American Sign Language to spoken English and back. Course topics include fidelity, comprehension, memory, reformation, self-monitoring and repair techniques. The course is built on readings, discussion, practice and self-analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 3813 Linguistics of American Sign Language
Prerequisites: ASL 2813 or equivalent proficiency.
Description: Presents authoritative readings on the most current linguistic concepts, including the fundamentals of phonology, morphology, syntax, semantics, and the use of language; stimulate discussion about the ongoing development of ASL linguistic theory; look at groundbreaking research on iconic signs in ASL, variation in ASL, different functions of space in ASL, and the artistic forms of ASL. Previously offered as ASL 3503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 3823 Science, Technology, Engineering, and Math II
Prerequisites: ASL 3723 or equivalent proficiency.
Description: This course is a continuation of STEM I and is designed to teach vocabulary and concepts about topics within secondary and post-secondary educational STEM settings. The course will involve participation in problem and project-based learning activities. Students will continue to learn applicable laws, resources to match both target educational levels, and the profession's standard practice for both settings. The course will help prepare students to enter the secondary and post-secondary school system as sign language interpreters or Deaf education teachers. This course will be taught in ASL.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 4003 Practicum I
Prerequisites: ASL 3773 and Instructor Permission.
Description: This course provides essential skills, knowledge, and preparation for the practical internship experience (ASL 4750: Practicum II).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 4550 Seminar in ASL
Prerequisites: Consent of instructor.
Description: Readings and discussion of vital subjects in American Sign Language. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

ASL 4713 American Sign Language Literature
Prerequisites: ASL 2813 or equivalent proficiency.
Description: Focus on ASL literature and narrations. Use of authentic stories from deaf presenters. Creation of poems and narrative stories that follow ASL structure and grammatical rules based on stories and history gleaned of the community of the Deaf World.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 4723 Simultaneous Interpreting
Prerequisites: ASL 3713
Description: This course is a continuation of consecutive interpreting and focuses on English and ASL simultaneous interpreting skills. Course topics include identifying sources of error, comprehension, transfer, reformulation, and self-monitoring. Students will also further develop their linguistic competencies of ASL and English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 4750 Practicum II
Prerequisites: ASL 4003 and Instructor Permission.
Description: Students will complete a part-time (or full-time) practicum interpreting experience under the direct supervision of a mentor in an educational, public, or private setting. Students will coordinate interpreting services, participate in professional development activities, observe interpreted events, and interpret. This course does not require on-site class meetings. The internship is completed at the site(s) agreed upon by the student, internship mentor, and the course faculty member.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

ASL 4813 Ethics for Interpreters
Prerequisites: ASL 3713
Description: Understand the purpose and obligations of an interpreter; how this role will affect the interpreter as well as others, since all actions have consequences. Look at stakeholders and short-term and long-term effects of decisions made and be able to support those decisions with ethical standards. Preparation to take the State of Oklahoma Quality Assurance Screening Test (QAST) by the end of the course. Previously offered as ASL 3603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ASL 4833 Interactive Interpreting
Prerequisites: ASL 3713
Description: This course explores how sign language interpreters work in an interactive discourse setting. The focus of the course will be on the dialogic nature of interpreting, the role of the interpreter through discourse, the impact of the presence of an interpreter, and the range of settings that require interactive skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

American Studies (AMST)

AMST 2103 Introduction to American Studies (DH)
Description: Introduction, via topical case studies, to some of the major themes, methods and materials used in the interdisciplinary study of American culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 2423 American Popular Culture (H)
Description: History of American popular culture and its role in shaping social behaviors, beliefs, and relations, especially as regards issues of race, class, gender, sexuality and social power. Previously offered as AMST 3423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 2473 American Imperial Culture
Description: This course is designed to be a broad survey of American Imperial culture, and responses to it, with a focus on the period from 1890 to 1960. Same course as HIST 2473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

AMST 2513 Plantation to Plate: Sugar, Bananas, and Coffee in America (H)
Description: Considers the historical impact that three food commodities - bananas, sugar, and coffee - have had on producing and consuming societies in Latin American and the United States. Analyzes the way food influenced the formation of racial and gender identities and examines different moments when these commodities influenced foreign policy and politics. Same course as HIST 2513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 2523 Dust Bowl (H)
Description: Examination of the Dust Bowl as: an ecological, economic, and human tragedy; cultural representations in film, literature, art, photography, and music; and a comparative example to study modern issues of ecology, water rights, and environmental justice in the southern plains and around the world. Same course as HIST 2523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 2683 Introduction to Digital Humanities (H)
Description: Introduction to issues and tools involved in digital knowledge production. Students will create hands-on projects using readily available digital tools. Basic familiarity with computers and word processing will be helpful, but no expertise is needed. Previously offered as AMST 3683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 3103 The History and Future of Work (H)
Description: What will work be like in the future? This course explores recent developments in work and the workplace. It draws on an array of. sources such as scholarship, journalism, memoirs, popular films, TV shows, and writings on the effects of technology on the labor market, workplace culture, and identity. Through these sources, the course will provide you with a roadmap to the future of work as well as a rich lens into ideas, cultural values, experience, and aesthetics relating to work.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 3113 Science, Literature, and Culture (H)
Description: This course provides students with opportunities for critical reading, thinking, discussion, and writing about the physical and life sciences, their history, and the cultural roles they play, especially in relation to literature. This course is structured as a general survey of the social and cultural study of science, examining major works in the history, philosophy, and sociology of science in conjunction with major works of English-language literature that engage directly with the sciences. Same course as ENGL 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 3223 Theories and Methods of American Studies
Description: In-depth introduction to the history, theories and methods of analysis used in American Studies scholarship.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

AMST 3253 Globalization and American Culture (H)
Description: Transmission, reception, and influence of American culture in one or more of the following: Europe, Asia, Latin America, the Middle East. The cultural history of globalization and American culture. Same course as HIST 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 3303 Nations on the Move: Latin American Migration and Latinx Communities in the US (DH)
Description: Examines Latin American migration to the United States through a case study approach. Considers US foreign policy, questions of labor and economic motivations, political violence and persecution, changes in immigration law, environmental issues, histories of the process of migration, and the formation of new identities and transnational communities and activism in the United States. Same course as HIST 3303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3313 Science, Technology and American Culture (H)
Description: American science and technology as systems of cultural representation, as communities of cultural practices, as mutually determined by other forms of cultural representation such as religion, social thought, art, architecture, literature, and music.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 3333 Crime, Law and American Culture (S)
Description: Study of crime, law and the legal system from a cultural perspective. Examine how race, gender, and social class play different roles in issues related to crime, law and the legal system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Society & Human Behavior

AMST 3373 Comparative Truth and Reconciliation in the Americas (D)
Description: Comparative study of truth and reconciliation in Oklahoma and beyond. Explores theories and practices of reconciliation in multicultural contexts. Emphasis on the relationship between past injustices and contemporary social problems. Possible topics might include the Tulsa Race Massacre, Native American boarding schools, and the internment or Japanese Americans in World War II.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity

AMST 3413 Science Fiction (H)
Description: This course will survey the development of science fiction literature as a genre, focusing on major figures and important topics from its beginnings to the contemporary scene. In examining the evolution of science fiction storytelling, we will also investigate how science fiction both reflects and influences broader historical and cultural changes in the 19th, 20th and 21st centuries. Same course as ENGL 3413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 3473 Race, Gender, and Ethnicity in American Film (D)
Description: A survey of race, gender, and ethnicity as they have been represented in American films. Same course as ENGL 3473.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: History
General Education and other Course Attributes: Diversity

AMST 3503 Television and American Society (DH)
Description: Examination of television within the social and cultural context of the US. Looks at the aesthetic and industrial practices that shape representation on TV and the effects of those practices, particularly for socially disempowered groups. Same course as ENGL 3503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3513 Film And American Society (H)
Description: Examination of the US film in its social, political, economic, and cultural contexts. Topics may include the history of US film production, distribution and consumption; Hollywood film genres; independent cinema; the star system; and/or representations of historical events, political issues, or social groups in US film.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 3550 The Arts and American Society
Description: Interdisciplinary study of major figures, trends, themes, periods, and modes of representation in American thought and cultural expression. Emphasis on the relationship between the arts and social, political, and historical context. Examples include Realism, American Modernism, Regionalism, American Postmodernism, the City and the Country, the Other, Nationalism, Time, and Space. Topics vary by semester. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

AMST 3653 The Body in American Culture (DH)
Description: The body and its impact on American culture examined through a survey of diverse cultural productions and social practices. Examine the intersections of ideas of embodiment with discourse of race, class, gender, sexuality, disability, and nationalism. Same course as HIST 4193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3673 History Of American Art (DH)
Description: Visual arts in America from the Colonial period to present. Major styles, ideas and uses of material in architecture, painting, sculpture and design. Same course as ART 3663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3723 Cultural History of American Sports (DH)
Description: Examines the role of sports in American cultural history; analyzes issues of class, ethnicity, gender, nationalism and race; interprets the importance of athletic heroes, fans, performance, and rituals; evaluates amateur, collegiate, Olympic, and professional institutions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3753 African American Arts and Culture (DH)
Description: An exploration of the history, practice, and significance of African American arts and culture. Topics might include black visual, literacy, filmic, musical, and street arts, artists, and movements. Approaches may be comparative or transnational. Same course as AFAM 3753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3803 War In American Culture (H)
Description: Study of war and its impact on American culture through an examination of diverse cultural productions and social practices. Emphasis on the circulation of common (and contested) representations of war within American visual, literary, and memorial culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 3813 Readings in the American Experience (DH)
Description: Life in the New World from the colonial to the postmodern era using a multiplicity of interdisciplinary texts that demonstrate the emergence and ongoing evolution of distinctive American identities. Same course as ENGL 3813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3823 U.S. as Business Culture (DH)
Description: Examines American business in relation to political, social and cultural phenomena, emphasizing the implications of business for race, class, gender and nation. Themes considered may include business literature, advertising, film, documentary, and other forms of popular and visual culture. The course examines changes in business and business culture over time, and offers students opportunities to synthesize sources that are not usually considered together.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3843 War and Memory in America (H)
Description: Examines the ways in which Americans have remembered and commemorated war from the American Revolution to the Global War on Terror. Topics include the creation and perpetuation of memory from both soldiers and civilians, the portrayal of war in popular culture, and the challenges of commemorating and memorializing America's militant past. Same course as HIST 3843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 3863 Disability in America (DH)
Description: Examines the history of disability in American culture. Considers evolving ideas about disability and the status of disabled people in American society. Topics include disability and the law; eugenics; the disability rights movement; representations of disability in popular culture; and intersecting ideas about disability, race, gender, and class. Same course as HIST 3863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3950 Special Topics in American Studies (DH)
Description: Special topics in American culture and society with an emphasis on race, class, gender, sexuality and other forms of diversity. Topics will vary, but all courses will emphasize both historical and contemporary examples and include analytical research and writing. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours. 3 credit course, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 3980 Inquiry in American Studies
Description: For students interested in pursuing a research or reading project. Open to honors students in American Studies and to others by permission of the program head. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

AMST 4103 The Death Penalty in America (S)
Description: This course is designed to examine problems and issues related to the death penalty in the United States, including the history of capital punishment, important Supreme Court decisions, how the various jurisdictions (state and federal) deal with capital cases, the comparative costs of incarceration and execution, miscarriages of justice in capital cases and how the criminal justice responds to these issues. Same course as HIST 4203 and SOC 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Society & Human Behavior

AMST 4453 Black Geographies & Memorialization in the Landscape (DH)
Prerequisites: Junior or senior standing or consent of instructor.
Description: How and why have African American people sought to memorialize their history in public places? How have Black counterpublics shaped discourse on memorials to African American history? What has this discourse done to the field of landscape and memory studies? To explore these questions, this course is organized around memory in the landscape as it relates to black geographies, including, for example, slavery, the Civil War, civil rights, and the Tulsa Race Massacre in the United States. Approaches may be comparative or transnational. Same course as AFAM 4453 and GEOG 4453. May not be used for degree credit with GEOG 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 4553 Gender in America (DH)
Description: Cultural, societal and political reflections of American men and women from the colonial era to the present. Examination of the women's movements and their opponents. Exploration of changing notions of masculinity and femininity. Same course as HIST 4553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

AMST 4593 America in International Perspective (H)
Prerequisites: HIST 1103 or lower-division survey course in U.S. History, any period.
Description: A transnational interpretation of American history from the colonial era to the present day. Uses a variety of interdisciplinary sources to place the history of the United States within a comparative, global framework. Same course as HIST 4593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

AMST 4910 American Period Seminar
Description: In-depth study of a particular period or era in American historical experience. Examples include The Ragtime Era, The Jazz Age, The Great Depression, The Postwar Era, The Civil Rights Movement, and Post Modern America. Topics vary by semester. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

AMST 4973 Senior Seminar in American Studies
Prerequisites: AMST 3223.
Description: Writing of senior thesis based on original research and its analysis and evaluation or completion of independent project based on practical community experience.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

AMST 4990 Internship
Description: An internship opportunity which combines independent study and practical fieldwork experience focusing on a particular problem or topic related to America culture and experience. (Examples: Internship in Archival Fieldwork, Material Culture Fieldwork, Museum Management, Sound Recordings and Native American Heritage Site). Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: History

Animal Science (ANSI)

ANSI 1021 Introduction to the Animal Sciences Lab
Prerequisites: Concurrent enrollment in ANSI 1023.
Description: Laboratory to accompany ANSI 1023 - species adaptability, product standards and requirements areas and types of production, processing and distribution of products, includes meat animals, dairy and poultry.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences

ANSI 1023 Introduction to the Animal Sciences for NON-MAJORS
Description: An overview of how animals are raised and used for food and other products, focusing on livestock, poultry, and dairy species. Topics include how animals adapt to different environments, the standards and requirements for animal products, and the basic processes of production, processing, and distribution. Will be offered as lecture only for students not majoring in Animal Science. May not be used for degree credit with ANSI 1124.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 1124 Introduction to the Animal Sciences
Description: Comprehensive study of livestock, dairy, and poultry sciences and industries, including species adaptability, production systems, product standards, and requirements. Emphasis on production, processing, and distribution of animal products. Laboratory will provide hands-on experience in livestock animal production, behavior, handling, evaluation, and industry practices. Will be offered as lecture and lab for animal science majors and others wanting more in-depth introduction to animal sciences. May not be used for degree credit with ANSI 1023.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 1401 Equine Behavior and Handling
Description: Equine management techniques - understanding equine behavior and anatomy. Basic equine handling, management principles, hoof care, dental care, first aid and wound care. Introduction to behavior and training of the horse, techniques of safe handling based on the principles of equine behavior.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 2111 Animal and Food Science Professional Development
Description: Student development through study of career goals specific to animal or food science, eventual career development through resume building, internships, and networking. Previously offered as ANSI 1111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 2112 Live Animal Evaluation
Prerequisites: ANSI 1124.
Description: Using tools for selection including performance records, pedigree information and visual appraisal, in the evaluation of cattle, swine, sheep, horses and poultry.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 2123 Livestock Feeding
Description: Nutrients and their functions, nutrient requirements of the various classes of livestock; composition and classification of feed stuffs and ration formulation. Not required of animal science majors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 2233 The Meat We Eat
Description: Overview of all animal, poultry, and fish protein sources used for human consumption, but focusing on red meat. Examination of each phase of production, inspection, safety, grading, processing, preparation, and current issues of the industries. Development of an understanding of the importance of meat in the diet and part of global agriculture. Same course as FDSC 2233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 2253 Meat Animal and Carcass Evaluation
Description: Evaluation of carcasses and wholesale cuts of beef, pork, and lamb. Factors influencing grades, yields and values in cattle, swine and sheep. Same course as FDSC 2253.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 2890 Introductory Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental introductory honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated course(s). Offered for variable credit, 1-3 credit hours, maximum of 9.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
General Education and other Course Attributes: Honors Credit

ANSI 3123 Livestock Health and Diseases
Prerequisites: ANSI 1124.
Description: Diseases of farm animals, both infectious and noninfectious, parasites, parasitic diseases, and the establishment of immunity through the use of biological products, prevention and/or treatment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3212 Advanced Dairy Cattle Evaluation
Description: Advanced evaluation of type traits as they relate to longevity and profitability in the dairy cow.
Credit hours: 2
Contact hours: Contact: 4 Other: 4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

ANSI 3222 Advanced Equine Evaluation
Description: Advanced evaluation of halter and performance horses. Includes both Western and English disciplines.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences

ANSI 3232 Advanced Meat Evaluation
Description: Advanced evaluation of carcasses and wholesale cuts of beef, pork and lamb. Same course as FDSC 3232.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3242 Advanced Livestock Evaluation
Prerequisites: ANSI 2112.
Description: Advanced evaluation of beef cattle, sheep, and swine.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3252 Advanced Wool Evaluation
Description: Advanced instruction in wool grading.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences

ANSI 3310 Advanced Competitive Evaluation
Prerequisites: Consent of instructor.
Description: Advanced instruction in animal and/or product evaluation. For students competing on collegiate judging teams. Same course as FDSC 3310. Offered for fixed credit, 2 credit hours, maximum of 6 credit hours.
Credit hours: 2
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Clinical
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3312 Advanced Meat Animal Evaluation
Description: Advanced evaluation and pricing of meat animals. For students competing on the Meat Animal Evaluation Team.
Credit hours: 2
Contact hours: Contact: 4 Other: 4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

ANSI 3322 Applied Meat Animal Selection
Prerequisites: ANSI 3310 and consent of instructor.
Description: Applied selection of meat animals using principles of genetics, animal breeding, and phenotypic evaluation in real world selection scenarios to predict the value of breeding and market livestock.
Credit hours: 2
Contact hours: Contact: 6 Other: 6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3333 Meat Science
Description: Anatomical and basic chemical and physical characteristics of meat animals studied. The application of scientific principles to the processing and economical utilization of meat animals, as well as in the manufacture of meat products emphasized in the laboratory. Same course as FDSC 3333. May not be used for degree credit with ANSI 5433.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3402 Equine Training Methods
Description: Basic techniques of equine training. Performance of various maneuvers including halter breaking, saddling, longing, driving, and riding. Course previously offered as ANSI 3202.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3410 Peer-Led Team Learning in Animal Science
Prerequisites: Consent of instructor.
Description: Selected undergraduate students work as peer leaders for learning teams for Animal Science courses. Development of oral and written communication skills of technical concepts in animal science. Duties include meeting regularly with discussion and laboratory sessions, participating in instructional activities and evaluating class performance. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Lab 1-5.
Credit hours: 1-6
Contact hours: Lecture: 1 Lab: 2-10 Contact: 3-11
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3414 Form and Function of Livestock and Poultry
Prerequisites: ANSI 1124 and BIOL 1114 or (BIOL 1113 and BIOL 1111) or consent of instructor.
Description: Form and function of livestock and poultry. Major systems (muscle, skeletal, neural, endocrine, cardiovascular, respiratory and gastrointestinal) with emphasis on comparative anatomy and integrated function related to livestock in agricultural production systems.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3420 Undergraduate Research in Animal and Food Science
Description: Designed for students participating in undergraduate research in Animal and Food Sciences. Students actively participate in research methodologies, including foundational research theories and protocols. Previously offered as ANSI 1223. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3423 Animal Genetics
Prerequisites: Undergraduate level BIOL 1114 or (BIOL 1113 and BIOL 1111), minimum grade of C.
Description: The basic principles of heredity including: kinds of gene action, random segregation, independent assortment, physical and chemical basis of heredity, mutations, sex-linkage, chromosome mapping, multiple alleles and chromosomal abnormalities. Also a brief introduction to quantitative inheritance and population genetics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3433 Animal Breeding
Prerequisites: ANSI 3423.
Description: The application of genetic principles to livestock improvement; study of the genetic basis of selection and systems of mating; development of breeding programs based on principles of population genetics.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3444 Animal Reproduction
Prerequisites: Introductory biology.
Description: Physiological processes of reproduction in farm animals including male and female anatomy, gonad function, endocrine relationships, fertility, and factors affecting reproduction efficiency. In the laboratory, emphasis on artificial insemination, estrous synchronization, embryo production via multiple ovulation embryo transfer (MOET) and in vitro fertilization (IVF), cryopreservation of gametes or embryos, and pregnancy determination. Previously offered as ANSI 3443.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3453 Canine and Feline Genetics
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) or consent of instructor.
Description: Overview of fundamental genetic principles and the control of genetic variation in coat color, various disorders and other inherited feline and canine characteristics. Inherited conditions, the underlying genetic mutation if known, genomic technologies used to identify the mutations if unknown, and development of genetic tools to assist in canine and feline genetic testing and selection programs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 3463 Equine Genetics
Description: Basic Mendelian genetics with direct application to horses. Genetic principles and inheritance of particular equine characteristics and common genetic disorders.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

ANSI 3533 Equine Management and Production
Description: Current topics and trends in the horse industry. Basic principles of equine nutrition, reproduction, marketing, exercise physiology, health care, coat-color genetics, behavior and welfare.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 3543 Principles of Animal Nutrition
Prerequisites: CHEM 1215 or equivalent.
Description: Basic principles of animal nutrition including digestion, absorption, and metabolism of the various food nutrients; characteristics of the nutrients; measure of body needs; ration formulation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3623 Livestock Behavior and Environmental Interactions
Prerequisites: ANSI 1124.
Description: Animal behavior and animal-environment interactions related to health, productivity, and overall well-being of food animals. Concepts to improve housing accommodations, management strategies for animals to improve animal and human well-being and to use behavior as a tool for assessing welfare and improving human-animal interactions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 3633 Equine Sales Preparation
Description: Discussion and application of equine behavior modification and training techniques. Sale preparation, marketing techniques. Students will be responsible for completing safe and successful groundwork and riding of an OSU 2-year-old. Riding experience required.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences

ANSI 3643 Equine Breeding and Foaling
Description: Discussion and application of current management practices in horse reproduction. Breeding methods and foaling procedures, safety and biosecurity, health and nutrition, reproductive anatomy and hormones, behavior and handling.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 3651 Applied Animal Nutrition Lab
Prerequisites: ANSI 3543 and ANSI 3653 (or concurrent enrollment in ANSI 3653).
Description: Basic nutritional calculations and ration formulation for various classes of livestock; Formulation of rations and supplements to meet specific requirements using spreadsheet based formulators.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3653 Applied Animal Nutrition
Prerequisites: ANSI 3543.
Description: Composition, characteristics, and nutritive value of feeds and feed additives; feed labeling and regulation; qualitative and quantitative nutrient requirements of various classes of livestock; theory of feeding and supplementing various classes of livestock to meet specific nutrient requirements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 3703 Animal Management Techniques
Description: Animal handling and management practices. Basic husbandry procedures for domestic animals in farm, ranch, and/or other production settings or environments. Emphasis on practical handling, restraint, health evaluation, medication and treatment practices.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 3753 Basic Nutrition for Pets
Description: Nutrients, nutrient requirements, feeding practices, food sources, and diet management for pets and companion animals as well as exotic animals and birds.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 3903 Agricultural Animals of the World (G)
Description: The production and utilization of agricultural animals by human societies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
General Education and other Course Attributes: International Dimension
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4023 Poultry Science
Prerequisites: ANSI 1124 or (ANSI 1023 and ANSI 1021) and ANSI 3543.
Description: Application of poultry physiology to the management and production of commercial broilers, layers, and turkeys using a science-based approach to evaluate industry practices, compare economic factors, and welfare standards between breeds and housing systems.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4132 Welfare Assessment and Audit of Farm Animals
Prerequisites: ANSI 3623.
Description: Reliable, science-based, on-farm and slaughter welfare assessment systems for cattle, pigs and poultry as well as a methodology to convey welfare measures into understandable product information.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 4133 Reproductive Management in Cattle
Prerequisites: ANSI 3444
Description: Assisted Reproductive Technologies and reproductive management strategies in beef and dairy cattle production. Students will gain hands-on experience in bovine artificial insemination (AI), uterine palpation, and ultrasonography for reproductive management purposes.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4203 Rangeland and Pasture Utilization
Description: Investigation of livestock and forage interactions that impact productivity in the utilization of rangeland and improved pastures. Same course as NREM 4603. May not be used for Degree Credit with ANSI 5203.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 4213 Advances in Meat Science
Prerequisites: ANSI 3333 or FDSC 3333.
Description: Development of muscle and its transformation to meat. Properties of meat and their influence on water-binding, pigment formation, texture and fiber characteristics.Same course as FDSC 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 4333 Processed Meat
Prerequisites: ANSI 3033 or ANSI 3333.
Description: Meat and meat product composition. Techniques in the molding and forming of meat; sausage formulation; curing; quality control; and cost analysis. Same course as FDSC 4333. May not be used for Degree Credit with ANSI 5833.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 4423 Horse Science
Prerequisites: ANSI 3423 and ANSI 3543.
Description: Current concepts and production principles related to the horse industry including nutrition, reproduction, herd health, functional anatomy and implications, social behavior, and applying principles of psychology in horse management and training.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 4523 Pet and Companion Animal Management
Prerequisites: ANSI 1124.
Description: Current concepts, management principles related to pet and companion animal species and their roles in society. Discussion of the human-animal bond, service animals, kennel and cattery management, anatomy, internal and external parasites, toxins, restraint and handling, reproduction, nutrition, genetics, and breeding. Previously offered as ANSI 3523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4543 Dairy Cattle Science
Prerequisites: ANSI 3423 and ANSI 3543.
Description: Current concepts and production principles of the dairy cattle industry including value of milk products, milk marketing, physiology of lactation, reproduction, nutrition, mastitis, and housing. Analysis and active learning of dairy production systems using farm visits and field techniques laboratories. May not be used for Degree Credit with ANSI 5543.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 4553 Sheep Science
Prerequisites: ANSI 3423 and ANSI 3543.
Description: Breeding, feeding, management, and marketing of commercial and purebred sheep. May not be used for degree credit with ANSI 5653.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4613 Beef Cow-Calf Management
Prerequisites: ANSI 3423 and ANSI 3543.
Description: Application of farm and ranch land procurement and management principles with beef cattle acquisition, breeding, nutrition, reproduction, health, life cycle management, marketing, and economic analysis of the commercial cow-calf enterprise. Same course as ANSI 4612. May not be used for Degree Credit with ANSI 5813.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4633 Stocker and Feedlot Cattle Management
Prerequisites: ANSI 3612, ANSI 3653.
Description: Application of scientific knowledge, management principles, and research advances to modern stocker and feedlot cattle operations. Same course as ANSI 4632. May not be used for Degree Credit with ANSI 5633.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 4643 Swine Science
Prerequisites: ANSI 3423 and ANSI 3543.
Description: Application of genetic, physiological, microbiological, nutritional, and engineering principles to the efficient production of swine. May not be used for Degree Credit with ANSI 5643.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4703 Equine Enterprise Management
Prerequisites: ANSI 3433 and ANSI 3443 and ANSI 3653.
Description: Principles of equine enterprise management including ethical and legal issues, marketing, facility management, business structures, economic analysis and careers. May not be used for Degree Credit with ANSI 5703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4713 Beef Seedstock Management and Sales
Prerequisites: ANSI 3423 and ANSI 3543.
Description: Principles of beef cattle seedstock acquisition, breeding, nutrition, reproduction, health, life cycle management and economic analysis. Special emphasis on advertising, promotion, marketing and sales. Course previously offered as ANSI 4632.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 4803 Animal Growth and Performance
Prerequisites: An upper-division course in animal science.
Description: Physiological and endocrine factors affecting growth and performance of domestic animals. May not be used for Degree Credit with ANSI 5803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4823 Animal Genomics
Prerequisites: ANSI 3423 or equivalent.
Description: Introduction to analyzing genomes of common livestock species. Understanding the theory of next generation sequencing methods, and how these are applied in the field of livestock genomics, genome resequencing, analysis of genomic variant data, annotating a genome sequence using transcriptomics and proteomics and epigenomics. An introduction to assigning function to genes and genomic regions, exposure to the principles in molecular, comparative and evolutionary genetics/genomics and the application of these principles to livestock genomics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 4843 Applications of Biotechnology in Animal Science
Prerequisites: ANSI 3423 and BIOC 3653.
Description: Training in current biotechniques used in protein, hormone, and molecular genetic research in food and animal science. Theory and applications of the various techniques.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 4863 Capstone for Animal Agriculture
Prerequisites: Senior standing.
Description: Examination of the role of animal agriculture in society and the importance of research and current issues. Oral and written reports.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4900 Special Problems
Prerequisites: Consent of instructor.
Description: A detailed study of an assigned problem by a student wishing additional information on a special topic. Offered for variable credit,1-6 credits, maximum or 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 4910 Animal Industry Internship
Prerequisites: Consent of instructor.
Description: Full-time internship at an approved production, processing or agribusiness unit or other agency serving animal agriculture. Maximum credit requires a six-month internship in addition to a report and final examination. Graded on a pass-fail basis. May not be used for degree credit with ANSI 5910. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 5000 Master's Research and Thesis
Prerequisites: MS degree.
Description: Independent research planned, conducted, and reported in consultation with a major professor. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 5010 Special Problems
Description: Special problems in areas of animal science other than those covered by the individual graduate student as a part of his/her research and thesis program. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour and IDEA Tuition (AG) fee of $622 per credit hour apply.

ANSI 5102 Ethics and Professionalism in Animal and Food Science
Description: Discussion of regulations, laws, and resources; insights on complex ethical issues, including but not limited to research misconduct, how to address, report and find resources during cases of misconduct, conflicts of interest, and authorship; communication of research and accurately and objectively to different audiences. Same course as FDSC 5102.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5110 Seminar
Description: A critical review and study of the literature; written and oral reports and discussion on select subjects. Same course as ANSI 6110. Offered for 1 credit hour, maximum of 3 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 5113 Basic Reproductive Physiology
Prerequisites: ANSI 3443 or equivalent.
Description: Female and male reproductive processes, endocrine control of reproductive functions, and the application of reproductive physiology to animal production.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5123 Functional and Molecular Endocrinology
Prerequisites: An upper division physiology course.
Description: Endocrine regulation of growth, stress, metabolism, and reproduction in domestic farm animals including commercial applications. Focus on the influence of hormones at the systemic and cellular level.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5133 Reproductive Management of Cattle
Prerequisites: Graduate status
Description: Overview of reproductive management strategies for dairy and beef cattle. Hands-on training includes artificial insemination, uterine palpation for pregnancy detection, and ultrasonography to evaluate the uterus and ovarian structures. May not be used for degree credit with ANSI 4133.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5203 Rangeland and Pasture Utilization
Prerequisites: NREM 3613.
Description: Investigation of livestock and forage interactions that impact productivity in the utilization of rangeland and improved pastures. May not be used for Degree Credit with ANSI 4203.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5213 Advances in Meat Science
Prerequisites: ANSI 3333 or FDSC 3333.
Description: Development of muscle and its transformation to meat. Properties of meat and their influence on water-binding, pigment formation, texture and fiber characteristics. Same course as FDSC 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5303 Advanced Animal Breeding
Prerequisites: ANSI 3433 or equivalent and STAT 4013.
Description: Basic concepts of population genetics as related to theoretical animal breeding, including heritability, genetic correlations, selection methods, inbreeding and heterosis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5313 Marker Assisted Selection in Livestock
Prerequisites: ANSI 3433 or equivalent and STAT 4013.
Description: Use of molecular genetics information to capture variation of quantitative traits in farm animals and to enhance selection improvement programs. Discussion of current DNA based technologies, such as detecting, locating and measuring effects of quantitative trait loci (QTL), genetic markers, gene mapping methods and whole genome selection. Examination of emerging genomics technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5333 Carcass Value Estimation Systems
Prerequisites: Graduate classification.
Description: Analysis of scientific literature regarding carcass composition, quality and palatability. Overview of technology used to evaluate carcass quality factors. Same course as FDSC 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5423 Animal Stress and Environmental Physiology
Description: Interrelationship between the stress axis and other biological systems that can impact health and well-being of animals. General concepts of stress physiology, brain mechanisms, cellular pathways, and intercommunication of physiology, behavior, immunology, growth and development, reproduction/lactation, health, and disease.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5433 Meat Science
Description: Anatomical and basic chemical and physical characteristics of meat animals studied. The application of scientific principles to the processing and economical utilization of meat animals, as well as in the manufacture of meat products emphasized in the laboratory. Mya not be used for degree credit with ANSI 3333 and FDSC 3333.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5543 Dairy Cattle Science
Prerequisites: ANSI 3433, ANSI 3443 and ANSI 3653.
Description: Current concepts and production principles of the dairy cattle industry including value of milk products, milk marketing, physiology of lactation, reproduction, nutrition, mastitis, and housing. Analysis and active learning of dairy production systems using farm visits and field techniques laboratories. May not be used for degree credit with ANSI 4543.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5553 Interpreting Animal and Food Science Research
Prerequisites: STAT 5013 or concurrent enrollment.
Description: Critical evaluation and knowledgeable communication on the design, analyses, and reporting of animal science and food science research. Same course as FDSC 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5573 Techniques in Animal Molecular Biology
Prerequisites: BIOC 4113.
Description: Principles of major basic animal molecular biology techniques in gene cloning and expression. Hands-on experience with basic molecular biology techniques, including DNA cloning and quantitative measurement of mRNA and protein expression in eukaryotic cells.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5613 Advanced Beef Production
Description: Beef cattle breeding, nutrition, reproduction, health and disease prevention, life cycle management of the calf crop, as well as marketing alternatives for the producer. Farm and Ranch acquisition, management, including the stocker and/or feedlot phase.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5623 Livestock Behavior and Environmental Interaction
Description: Integrated approach to animal behavior and animal-environment interactions as it relates to health, productivity, and overall well-being to food animals. Concepts related to practical ways to improve housing accommodations, management strategies for animals that improve animal and human well-being use of behavior to assess the adaptability of animals in their environments. ANSI 5623 was used to denote Exp Methods Animal Res prior to Fall 1995. May not be used for degree credit with ANSI 3623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5633 Stocker and Feedlot Cattle Management
Prerequisites: ANSI 3653.
Description: Application of scientific knowledge, management principles, and research advances to modern stocker and feedlot cattle operations. May not be used for degree credit with ANSI 4633.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5643 Swine Science
Prerequisites: ANSI 3423 and ANSI 3543.
Description: Application of genetic, physiological, microbiological, nutritional, and engineering principles to the efficient production of swine. May not be used for degree credit with ANSI 4643.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5653 Sheep Science
Prerequisites: ANSI 3423 and ANSI 3543.
Description: Breeding, feeding, management, and marketing of commercial and purebred sheep. May not be used for degree credit with ANSI 4553.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5703 Equine Enterprise Management
Prerequisites: ANSI 3433 and ANSI 3443 and ANSI 3653.
Description: Principles of equine enterprise management including ethical and legal issues, marketing, facility management, business structures, economic analysis and careers. May not be used for degree credit with ANSI 4703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5733 Advanced Ruminant Nutrition
Prerequisites: ANSI 3653.
Description: Factors influencing nutrient requirements of ruminants for maintenance, growth, reproduction and lactation, and their implications with regard to husbandry practices and nutritional management of livestock. Application of current concepts of ruminant livestock nutrition; use of microcomputer programs in diet evaluation and formulation, beef gain simulation and problem solving.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5743 Rumenology
Prerequisites: ANSI 3653 or equivalent.
Description: Physiology of development of the ruminant digestive tract; the nature of, and factors controlling digestion and absorption from the tract to include the relative nature and roles of the rumen bacteria and protozoa. Same course as ANSI 5743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 5753 Animal Nutrition Techniques and Laboratory Methods
Prerequisites: CHEM 3015 or equivalent.
Description: Collection, handling, and processing of biological materials. Record keeping, pipetting, preparation of reagents, and conducting routine nutritional analysis. Theory of operation of major laboratory equipment. Application of current techniques to problem solving in animal nutrition research.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5763 Advanced Nonruminant Nutrition
Prerequisites: BIOC 3653.
Description: An in-depth study of the digestion, absorption, and metabolism of nutrients in nonruminant domesticated farm animals. Unique metabolic characteristics of nonruminant species contrasted with ruminant animals. Fundamentals of energetics as related to animal performance. Same course as ANSI 5762.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 5773 Protein Nutrition
Prerequisites: BIOC 3653.
Description: Nutritional, biochemical and clinical aspects of protein metabolism as it relates to nutritional status. Same course as ANSI 5772.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5783 Vitamin and Mineral Nutrition
Prerequisites: BIOC 5753.
Description: Development of the concept of dietary essential minerals and vitamins. Individual minerals and vitamins discussed for animal species from the standpoint of chemical form, availability, requirements, biochemical systems, deficiencies and excesses and estimation in foods and feed. Same course as ANSI 5782.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5803 Animal Growth and Performance
Prerequisites: An upper-division course in animal science.
Description: Physiological and endocrine factors affecting growth and performance of domestic animals. May not be used for degree credit with ANSI 4803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 5813 Beef Cow-Calf Management
Prerequisites: ANSI 3423 and ANSI 3543.
Description: Application of farm and ranch land procurement and management principles with beef cattle acquisition, breeding, nutrition, reproduction, health, life cycle management, marketing, and economic analysis of the commercial cow-calf enterprise. May not be used for Degree Credit with ANSI 4613.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 5823 Animal Genomics
Prerequisites: ANSI 3423 or equivalent.
Description: Introduction to analyzing genomes of common livestock species. Understanding the theory of next generation sequencing methods, and how these are applied in the field of livestock genomics, genome resequencing, analysis of genomic variant data, annotating a genome sequence using transcriptomics and proteomics and epigenomics. An introduction to assigning function to genes and genomic regions, exposure to the principles in molecular, comparative and evolutionary genetics/genomics and the application of these principles to livestock genomics. Same course as ANSI 4823.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 5833 Processed Meat
Prerequisites: ANSI 3033 or ANSI 3333.
Description: Meat and meat product composition. Techniques in the molding and forming of meat; sausage formulation; curing; quality control; and cost analysis. May not be used for degree credit with ANSI 4333.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

ANSI 5910 Animal Industry Internship
Prerequisites: Consent of instructor.
Description: Full-time internship at an approved production, processing or agribusiness unit or other agency serving animal agriculture. Maximum credit requires a six-month internship in addition to a report and final examination. Graded on a pass-fail basis. May not be used for degree credit with ANSI 4910. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

ANSI 5913 Animal Waste Management
Prerequisites: SOIL 2124.
Description: Aspects of animal waste management related to animal nutrition, system design, land application, socioeconomic issues and environmental impacts. May not be used for degree credit with ANSI 4913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

ANSI 6000 Doctoral Research and Dissertation
Prerequisites: MS degree.
Description: Independent research planned, conducted and reported in consultation with, and under the direction of, a major professor. Open only to students continuing beyond the level of the MS degree. Offered for variable credit, 1-10 credit hours, maximum of 30 credit hours.
Credit hours: 1-10
Contact hours: Contact: 1-10 Other: 1-10
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences
Additional Fees: Animals & Food Science fee of $13 per credit hour applies.

ANSI 6010 Special Topics in Animal Breeding
Prerequisites: Consent of instructor.
Description: Advanced topics and new developments in animal breeding and population genetics. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

ANSI 6110 Seminar
Description: A critical analysis of the objectives and methods of research in the area of animal science. Review of the literature, written and oral reports and discussion on select topics. Same course as ANSI 5110. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

Anthropology (ANTH)

ANTH 1353 Introduction to Anthropology (S)
Description: Explores the holistic dimensions of anthropology by introducing the four fields that comprise the discipline: cultural anthropology, linguistics, archaeology, and biological anthropology. Examines the content of each field and their collective contribution to the understanding of humanity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

ANTH 2353 Introduction to Biological Anthropology (N)
Description: Introduction to human biological evolution, including genetics, paleoanthropology, primatology, and osteology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Natural Science Reasoning

ANTH 2883 Introduction to Archaeology (S)
Description: A general introduction to the methods of study of archaeology. Understanding the development of prehistoric cultures as adaptive responses to changing natural and social environments from early Paleolithic to emergence of urban civilizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

ANTH 3353 Cultural Anthropology (GS)
Description: Introduction to culture, various subdisciplines of cultural anthropology, anthropological concepts, and capsule ethnographies of assorted ethnic groups.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: International Dimension, Society & Human Behavior

ANTH 3443 Peoples of Mesoamerica (GS)
Description: Modern indigenous peoples of Mexico and Central America. Examination of contemporary communities and modern social and cultural practices understood from a historical perspective, leading to an appreciation of regional similarities and diversity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: International Dimension, Society & Human Behavior

ANTH 3990 Fieldwork in Anthropology
Prerequisites: Consent of instructor.
Description: Instruction through ethnographic or archaeological field techniques by participation in a field program. Topics subject to change from year to year depending upon the type of field program offered or available. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Lecture: 1-8 Contact: 1-8
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

ANTH 4123 Archaeology of North America (S)
Description: Factors influencing the initial peopling of North America, the spread and diversification of hunting and gathering economies, the rise of agricultural systems and emergence of extensive and complex political units.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

ANTH 4223 The Aztec Empire (H)
Description: Society and Culture of the Aztecs of Mesoamerica. Overview of preceding civilizations, analysis of imperial strategies, social organization, religion, and other topics culminating in the Spanish conquest.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Human Heritage & Cultures

ANTH 4443 Oklahoma Archeology (S)
Description: Surveys social and cultural development of Native peoples of Oklahoma from Paleoindian hunting adaptations to villagers encountered by early Europeans. Using archaeological investigations examines diversity of social and cultural adaptations to various environments of Oklahoma, including development of complex societies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

ANTH 4990 Special Topics in Anthropology
Prerequisites: Consent of instructor.
Description: Directed readings or research on significant topics in anthropology. May not be used for degree credit with ANTH 5990. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Sociology

ANTH 5243 Globalization and Culture
Prerequisites: Admission to Graduate College and International Studies.
Description: Critical assessment of 20th century social scientific theories of development culminating in current theories of globalization. Exploration of capitalism's antecedents, origin, and proliferation. Evaluation of global inequality from a cross-culture perspective. Utility of anthropological theories of culture, ideology and hegemony in assessing local responses to globalization. No credit for students with credit in INTL 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

ANTH 5990 Advanced Problems and Issues in Anthropology
Prerequisites: Consent of instructor.
Description: Directed readings or research on significant topics in anthropology. May not be used for Degree Credit with ANTH 4990. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Sociology

Arabic (ARB)

ARB 1713 Elementary Arabic I
Description: Pronunciation, conversation, grammar, and reading. Includes language lab work. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ARB 1813 Elementary Arabic II
Prerequisites: ARB 1713 or equivalent proficiency.
Description: Continuation of ARB 1713. Includes language lab work.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ARB 2713 Intermediate Arabic I
Prerequisites: ARB 1813 or equivalent proficiency.
Description: Further development of speaking, listening, reading, and writing skills along with short cultural and literacy readings. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ARB 2813 Intermediate Arabic II
Prerequisites: ARB 2713 or equivalent proficiency.
Description: Skill consolidation with emphasis on grammar, short readings and conversation. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ARB 3033 Advanced Arabic I
Prerequisites: ARB 2813 or equivalent proficiency.
Description: Development of conversational skills in formal and informal Arabic language; study of oral communication and idioms; vocabulary enhancement and grammar review.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

ARB 3133 Advanced Arabic II
Prerequisites: ARB 2813 or equivalent proficiency.
Description: The development of all forms of written communication in Arabic through practice in writing compositions, letters, reports, and other documents in Arabic.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

Architecture (ARCH)

ARCH 1112 Introduction to Architecture
Description: An introduction to the professions of architecture and architectural engineering. Previously offered as ARCH 1111. Same course as UNIV 1111.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 1211 Introduction to Architectural Studies
Description: An introduction to the professions of architecture and architectural engineering. No degree credit with credit in ARCH 1112.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 1216 Architectural Design Studio I
Prerequisites: Grade of "C" or better in ARCH 1112, or consent of instructor.
Description: Architectural graphics and design fundamentals. Students progressing in the Physics 1114/2014 and MATH 2144 course sequence will be given preference in enrollment. Additionally, students who have not received a grade for ARCH 1216 will be given first priority in enrollment. Students who have received a grade in this course will be admitted on a space available basis and at the discretion of the school head and architecture advisor.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 2003 Architecture and Society (GH)
Description: Design, planning, and building considered in their social and aesthetic contexts. Some sections may be restricted to Architectural Engineering majors, see course offerings. May not be used for degree credit with ARCH 2183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ARCH 2100 Architectural Studies
Description: Beginning studies in graphics and design in architecture. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Architecture

ARCH 2116 Architectural Design Studio II
Prerequisites: Grade of "C" or better in ARCH 1216.
Description: Students who have not received a grade for ARCH 2116 will be given first priority in enrollment. Students who have received a grade in this course will be admitted on a space available basis and at the discretion of the school head and architecture adviser. Problems in architectural design.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 2183 History and Theory of Architecture I
Description: History and theory of global architecture prior to the year 1400 CE. May not be used for degree credit with ARCH 2003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 2203 History and Theory of Architecture Since 1900
Prerequisites: ARCH 2003. Grade of "C" or better.
Description: History and theory of world architecture in the 20th century and beyond. May not be used for degree credit with ARCH 2283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 2216 Architectural Design Studio III
Prerequisites: Grade of "C" or better in ARCH 1216 and ARCH 2116. Students who have not received a grade for ARCH 2216 will be given first priority in enrollment. Students who have received a grade in this course will be admitted on a space available basis and at the discretion of the school head and architecture adviser.
Description: Problems in architectural design.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 2252 Design Communication I: Visual and Graphic Acuity
Prerequisites: Co-requisite enrollment in ARCH 2116 or permission of instructor.
Description: Introduction to the communication strategies unique to the professions of architecture and architectural engineering.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 2263 Building Systems
Prerequisites: Grade of "C" or better in ARCH 1216 and ARCH 2116.
Description: Architectural, structural, and environmental control systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 2283 History and Theory of Architecture II (H)
Description: A study of mankind's accomplishments exhibited in architecture from the renaissance to the present day. May not be used for degree credit with ARCH 2203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture
General Education and other Course Attributes: Human Heritage & Cultures

ARCH 2890 Honors for Topics in Architecture
Prerequisites: Honors student standing.
Description: Honors Topics course to be used as an Add on for students concurrently enrolled in other ARCH courses, or can be used as a stand-alone course. Enrichment experiences to enhance the understanding of Architectural design. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture
General Education and other Course Attributes: Honors Credit

ARCH 3033 Design Methods
Prerequisites: ARCH 2216 or permission of instructor.
Description: Investigations in design problem solving.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 3043 Structural Loadings in Architecture
Prerequisites: "C" or better in ENSC 2143, and/or co-requisite enrollment in ARCH 3143.
Description: An exploration of types of loadings and their application in the design of building structures.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3083 History and Theory of Renaissance and Baroque Architecture (H)
Prerequisites: ARCH 2003. Grade of "C" or better. Or ARCH 2283. Grade of "C" or better.
Description: History and theory of Renaissance and Baroque architecture in the western world.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture
General Education and other Course Attributes: Human Heritage & Cultures

ARCH 3100 Special Topics in Architecture
Description: Subjects to be selected by the faculty in architecture from advances in state-of-the-art areas. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Architecture

ARCH 3116 Architectural Design Studio IV
Prerequisites: Grade of "C" or better in ARCH 2216 and admission to Professional School.
Description: Problems in architectural design.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 3143 Structures: Analysis I
Prerequisites: Grade of "C" or better in ENSC 2143.
Description: Structural theory for applications in architecture. Previously offered as ARCH 3243.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3163 Architectural Science I: Thermal Systems and Life Safety for Architects
Prerequisites: Admission to Professional School, or permission of instructor.
Description: A survey of the scientific and design fundamentals of thermal comfort, building physics, building performance and energy concerns, and mechanical systems for buildings as well as the basic principles of life safety. May not be used for degree credit with ARCH 4134 or ARCH 4163. Previously offered as ARCH 3134.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3173 History and Theory of American Architecture
Prerequisites: ARCH 2003. Grade of "C" or better. Or ARCH 2283. Grade of "C" or better.
Description: History and theory of American architecture from the colonial period to the present day.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 3216 Architectural Design Studio V
Prerequisites: Grade of "C" or better in ARCH 3116.
Description: Problems in architectural design.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 3223 Structures: Timbers
Prerequisites: Grade of "C" or better in ARCH 3323.
Description: Analysis and design of timber structures used in architecture.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3224 Structures: Steel II
Prerequisites: Grade of "C" or better in ARCH 3323 and ARCH 3143.
Description: Design and analysis of multi-story steel frames, trusses, arches, and other architectural structure components. Previously offered as ARCH 4244 and ARCH 4144.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3252 Computer Applications in Architecture I
Prerequisites: Grade of C or better in ARCH 2116, and concurrent enrollment in ARCH 2216.
Description: Introduction to 2D and 3D computer topics and their application in the design process. No credit for students with credit in ARCH 3253.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 3262 Design Communication II: Advanced Digital Applications
Prerequisites: Grade of "C" or better in ARCH 2252 or ENGR 1412.
Description: State-of-the-art applications of computers to the practice of architecture and architectural engineering. Previously offered as ARCH 4053.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3263 Materials In Architecture
Prerequisites: Grade of "C" or better in ARCH 2263 and admission to Professional School.
Description: Introduction to the basic materials used in the construction of architecture and how such materials affect both the design and implementation of the systems that incorporate these materials.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 3273 History and Theory of Medieval Architecture
Prerequisites: ARCH 2003, Grade of "C" or better. Or ARCH 2183, Grade of "C" or better. Or consent of instructor.
Description: History and theory of the architecture created between the 8th and 15th centuries in Europe, and its impact on the subsequent religious architecture of today.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 3323 Structures: Steel I
Prerequisites: Grade of "C" or better in ENSC 2113 and admission to the Professional Program or permission of school head and advisor.
Description: Analysis and design of steel structures used in architecture.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3343 Structures: Steel II
Prerequisites: Grade of "C" or better in ARCH 3323 and ARCH 3043.
Description: Analysis, design, detailing and documentation of multi-story steel structures, and other structural components used in architecture applications. Previously offered as ARCH 3224.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3353 Advanced Graphics and Theory of Representation
Prerequisites: Grade of "C" or better in ARCH 2252 or consent of instructor.
Description: Manual and digital graphic techniques are explored in a project-based studio learning environment.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3373 Design and Diversity in Urban Centers of the US
Prerequisites: Permission of Instructor.
Description: Field study analysis of the diverse social and cultural issues evidenced through the design of architecture in major urban centers of the United States. Previously offered as ARCH 3370.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 3423 Biomimicry and Architecture
Description: Introduction to principles of biomimicry and how these can be utilized to achieve innovative solutions in architecture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 3433 Architectural Science II: Acoustics, Lighting, and Service Systems
Prerequisites: MATH 2144, Grade of "C" or better.
Description: A survey of scientific and design fundamentals of architectural acoustics, lighting, electrical, and signal, conveying, and plumbing systems for buildings. May not be used for degree credit with ARCH 4433.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 3473 History and Theory of Structures in Architecture (H)
Prerequisites: "C" or better in ARCH 2003 or ARCH 2183 or ARCH 2283.
Description: A study of the language of structural systems as manifested in architecture through the ages.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture
General Education and other Course Attributes: Human Heritage & Cultures

ARCH 4073 History and Theory of Early Modern Architecture
Prerequisites: ARCH 2003, Grade of "C" or better. Or ARCH 2283, Grade of "C" or better.
Description: History and theory of modern architecture in the western world from the industrial revolution to the early twentieth century.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4093 Architectural Project Management
Prerequisites: Concurrent enrollment in ARCH 4216 or ARCH 5226 or consent of instructor.
Description: Principles of management as applied to architectural and architectural engineering projects. Previously offered as ARCH 5293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4100 Special Topics in Architecture
Prerequisites: Consent of instructor and head of the school.
Description: Subjects to be selected by the faculty in architecture from advances in state-of-the-art areas. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Architecture

ARCH 4116 Design Studio VI
Prerequisites: Grade of "C" or better in ARCH 3216 and ARCH 3262.
Description: Problems in architectural design. Previously offered as ARCH 4517.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 4123 Structures: Concrete I
Prerequisites: Grade of "C" or better in ARCH 3323.
Description: Analysis and design applications in architectural problems using concrete structures.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 4131 Architectural Science Lab
Prerequisites: Enrollment by permission of instructor or academic advisor; senior standing.
Description: Laboratory experiments for building systems. Systems may include heating, cooling, electrical, lighting, acoustics and plumbing.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 4143 Structures: Foundations for Buildings
Prerequisites: Grade of "C" or better in ARCH 4123.
Description: Subsurface soil conditions and design of foundation systems and retaining walls for buildings.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 4163 Architectural Science I: Thermal Systems and Life Safety for Architectural Engineers
Prerequisites: Admission to Professional School, or permission of instructor.
Description: A survey of the scientific and design fundamentals of thermal comfort, building physics, building performance and energy concerns, and mechanical systems for buildings, as well as the basic principles of life safety. May not be used for degree credit with ARCH 3134, ARCH 4134, or ARCH 3163. Previously offered as ARCH 4134.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 4173 History and Theory of Skyscraper Design (H)
Prerequisites: ARCH 2003, Grade of "C" or better. Or ARCH 2283, Grade of "C" or better.
Description: History and theory of the development of the skyscraper in the USA from the late 19th century to the present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture
General Education and other Course Attributes: Human Heritage & Cultures

ARCH 4183 History and Theory of Architecture: Cities
Prerequisites: ARCH 2003, Grade of "C" or better. Or ARCH 2283, Grade of "C" or better.
Description: The development of cities as an aspect of architecture from ancient times to the twentieth century.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4203 Experimental Design Lab
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 4216 Architectural Design Studio VII
Prerequisites: Grade of "C" or better in ARCH 3163 and ARCH 3433 and ARCH 4116 and ARCH 4123.
Description: Problems in Architectural Design. May not be used for degree credit with ARCH 5226.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 4224 Structures: Concrete II
Prerequisites: Grades of "C" or better in ARCH 3262, ARCH 4123, and concurrent enrollment in ARCH 4143.
Description: Design and analysis of multi-story reinforced concrete frames used in architecture applications. Previously offered as ARCH 4225.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 4233 Sustainable Design in Architecture
Prerequisites: Grade of "C" or better in ARCH 3134 or ARCH 3163 or ARCH 4163.
Description: Sustainability topics and their application to architecture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4263 Architecture Seminar
Prerequisites: Co-requisite enrollment in ARCH 4216 or ARCH 5226, or permission of instructor.
Description: Topics in architecture and architectural engineering. May not be used for degree credit with ARCH 5263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4273 History and Theory of Islamic Architecture
Prerequisites: ARCH 2003, Grade of "C" or better. Or ARCH 2183, Grade of "C" or better.
Description: Architecture of the Islamic World.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4283 Architecture of Asia
Prerequisites: ARCH 2003 Architecture and Society.
Description: History and theory of the architecture of Asia.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4293 The Ethics of the Built Environment (H)
Prerequisites: Admission to the professional program or consent of instructor.
Description: Analysis of basic values that determine the form of the built environment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture
General Education and other Course Attributes: Human Heritage & Cultures

ARCH 4343 Structures: Concrete II
Prerequisites: Grade of "C" or better in ARCH 3262 and ARCH 4123.
Description: Analysis, design, detailing and documentation of multi-story reinforced concrete structures, and other structural components used in architecture applications. Previously offered as ARCH 4224.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 4353 Computational Foundations
Description: The use of advanced 3D digital design tools for architectural applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4373 Field Study in Europe I
Prerequisites: Senior standing in architecture or consent of instructor.
Description: On-site analysis and study of European architecture, culture, and urban design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4374 International Field Study (GH)
Prerequisites: Admission to Professional Program in Architecture or Architectural Engineering or approval of instructor and head of school.
Description: On-site analysis and study of international architecture, culture and urban design.
Credit hours: 4
Contact hours: Lab: 8 Contact: 8
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ARCH 4383 History and Theory of Modern Architecture in Italy
Prerequisites: ARCH 2003, Grade of "C" or better. Or ARCH 2283, Grade of "C" or better.
Description: History and theory of the progressive experimental architecture created in Italy in the Modern era amidst the cultural, economic, and political realities of 1909-1943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 4433 Architectural Science II: Acoustics, Lighting, and Service Systems for Architectural Engineers
Prerequisites: MATH 2144, Grade of "C" or better.
Description: Engineering fundamentals of architectural acoustics, lighting, electrical, and signal, conveying, and plumbing systems for buildings. May not be used for degree credit with ARCH 3433.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 4444 Structures: Analysis II
Prerequisites: Grade of "C" or better in ARCH 3143 and ENGR 1412.
Description: Mathematical formulation of architectural structural behavior. Matrix applications, finite element, finite differences, stability considerations, and three dimensional structural modeling.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 4991 Professional Development for Architects and Architectural Engineers
Prerequisites: Admission to Professional School, or permission of instructor.
Description: Professional values, culture, mentorship, and leadership development companion course to a professional experience.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 5003 Integrative Design
Prerequisites: Admission to the Graduate College and the Architecture Graduate Certificate Program.
Description: Advanced Topics in Integrative Design.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Architecture

ARCH 5016 Architectural Design Studio VIII
Prerequisites: Grade of "C" or better in ARCH 4216 or permission of school head or advisor.
Description: Problems in architectural design. May not be used with degree credit in ARCH 5117.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Graduate, Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 5023 Timber and Masonry Design and Analysis
Prerequisites: Grade of "C" or better or concurrent enrollment in ARCH 4123, or by permission of instructor.
Description: Analysis and design of timber and masonry structures, including code requirements, analysis techniques, design of components, and detailing of architectural engineering contract documents conforming to the relevant codes.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate, Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 5093 Real Estate Development
Prerequisites: Admission to professional program, or consent of instructor.
Description: Introduction to real estate development as a function of project conception, analysis, design and delivery. Same course as EEE 5200.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 5100 Special Topics in Architecture
Prerequisites: Consent of instructor and head of the school.
Description: Subjects to be selected by the faculty in architecture from advances in state-of-the-art areas. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate, Undergraduate
Schedule types: Independent Study
Department/School: Architecture

ARCH 5117 Architectural Design Studio VIII
Prerequisites: Grade of "C" or better in 4216 or permission of school head or advisor.
Description: Problems in architectural design. No credit for students with credit in ARCH 5116.
Credit hours: 7
Contact hours: Lab: 16 Contact: 16
Levels: Graduate, Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 5133 Advanced Energy Issues in Architecture
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 5143 Structures: Special Loadings
Prerequisites: Grade of "C" or better in ARCH 4444.
Description: Mathematical formulations and modeling in architectural structures. Human response to vibrations. Seismic design in building. Design for extreme winds on buildings. Approximate methods for preliminary design of architectural structures. Previously offered as ARCH 5243.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate, Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 5193 Management of Architectural Practice
Prerequisites: Fifth-year standing in architecture or architectural engineering or consent of instructor.
Description: Principles of management as applied to the private practice of architecture and architectural engineering.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 5217 Architectural Design Studio IX
Prerequisites: Grade of "C" or better in 5117 or consent of instructor.
Description: Problems in architectural design. Previously offered as ARCH 5216.
Credit hours: 7
Contact hours: Lab: 16 Contact: 16
Levels: Graduate, Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 5226 Architectural Engineering Comprehensive Design Studio
Prerequisites: Grade of "C" or better in ARCH 4143, ARCH 4163, ARCH 4433, and ARCH 5023.
Description: Problems in architectural and architectural engineering design. May not be used for degree credit with ARCH 4216.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Graduate, Undergraduate
Schedule types: Lab
Department/School: Architecture

ARCH 5263 Advanced Architecture Technology Seminar
Prerequisites: Concurrent enrollment in ARCH 4216 or ARCH 5226, or permission of instructor.
Description: Advanced topics in technology related to the disciplines of architecture and architectural engineering. May not be used for degree credit with ARCH 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Architecture

ARCH 5373 Field Study in Europe II
Prerequisites: Senior standing in architecture or consent of instructor
Description: On-site analysis and study of European architecture, culture and urban design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 5493 Entrepreneurship and Architecture
Prerequisites: Senior standing.
Description: Introduction to entrepreneurship within the context of architecture, with direct application to architectural services, activities, and products. Emphasis on implementing the entrepreneurial process in starting and sustaining new ventures that significantly shape the built environment. Same course as EEE 5493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 6000 Special Problems
Prerequisites: Consent of instructor and head of school.
Description: Theory, research or design investigation in specific areas of study in the field of architecture and its related disciplines. Plan of study determined jointly by student and graduate faculty. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Architecture

ARCH 6083 History and Theory of Contemporary Architecture
Prerequisites: Graduate standing or consent of instructor
Description: American architecture beginning in the 16th century through the 20th century.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 6113 Creative Component Research
Prerequisites: Admission to graduate program.
Description: Data gathering, analysis and program formulation related to creative component.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Architecture

ARCH 6117 Graduate Design Studio
Prerequisites: Admission to graduate program.
Description: Problems in architectural design.
Credit hours: 7
Contact hours: Lab: 14 Contact: 14
Levels: Graduate
Schedule types: Lab
Department/School: Architecture

ARCH 6203 Creative Component in Architectural Engineering
Description: A design project based on a program previously developed by the student, to include a written report and supporting documents when appropriate. Must be approved by the project advisor and completed in the final semester of the graduate program.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Architecture

ARCH 6207 Creative Component in Architecture
Prerequisites: ARCH 6117.
Description: A design project based on a program previously developed by the student to include a written report and supportive documents when appropriate. Must be approved by the project adviser and completed in the final semester of the graduate program.
Credit hours: 7
Contact hours: Contact: 7 Other: 7
Levels: Graduate
Schedule types: Independent Study
Department/School: Architecture

ARCH 6243 Structures: Analysis III
Prerequisites: Grade of "C" or better in ARCH 4444 and admission to the graduate program.
Description: Analysis techniques for architectural structures including stability, space frames, computer applications, guyed towers and project research.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Architecture

ARCH 6343 Structures: Steel III
Prerequisites: Grade of "C" or better in ARCH 3343, or by permission of instructor.
Description: Advanced topics in structural steel design, and steel connection design and detailing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Architecture

ARCH 6543 Structures: Concrete III
Prerequisites: Grade of C or better in ARCH 4224.
Description: Design of prestressed concrete structures, including pre- and post-tensioning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Architecture

Art (ART)

ART 1103 Drawing I
Description: A freehand drawing experience designed to build basic skills and awareness of visual relationships. A sequence of problems dealing with composition, shape, volume, value, line, gesture, texture and perspective. A variety of media explored.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 1113 Drawing II
Prerequisites: ART 1103.
Description: Objective and subjective approaches to visual problem solving in a variety of black and white and color media. The analysis and manipulation of form, light, space, volume, and the formal aspects of perspective.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 1203 Visual Thinking: Image and Surface
Description: Investigation of fundamental design principles and visual elements through the process of image making. Students explore the dynamics of composition through developing approaches to aesthetics, visual analysis, perception and narrative. Provides experience with a variety of two-dimensional media and develops core skills in observation, craft and technique. Emphasis is placed on interdisciplinary learning through lectures, discussions, critiques, and the process of making images.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 1303 Visual Thinking: Form and Space
Description: Investigation of fundamental design principles of form through the process of object making. Students explore concepts of interaction between form, space and movement through developing approaches to the construction and manipulation of materials. Provides experience with a variety of three-dimensional media and develops skills in observation, craft and technique. Emphasis is placed on interdisciplinary learning through lectures, discussions, critiques, and the process of making objects. Course previously offered as ART 2203.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 1503 Art History Survey to 1400 (H)
Description: Introduction to the history of art, from the Prehistoric era to c. 1400 CE. Introduces visual arts from diverse regions and cultures. Investigates the cultural, social, religious, political, and personal contexts that surround art and architecture. Focuses on skills such as visual literacy and analysis, critical thinking, and writing about art. May be taken independently of ART 1513. Previously offered as ART 2603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 1513 Art History Survey Since 1400 (H)
Description: Part 2 of the introduction to the history of art, from c. 1400 CE to present. Introduces visual arts from diverse regions and cultures. Investigates the cultural, social, religious, political, and personal contexts that surround art and architecture. Focuses on skills such as visual literacy and analysis, critical thinking, and writing about art. May be taken independently of ART 1503. Previously offered as ART 2613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 1603 Introduction to Global Art (H)
Description: Introductory survey of global art history, with emphasis on modern and contemporary art. Intended for non-art majors. Course previously offered as ART 1803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 2003 Studio Methods and Preparation
Description: Portfolio concept development including idea generation, sketchbook, analyzing and evaluating art criticism and select contemporary artists. Professional portfolio presentation, including matting, artwork documentation and resume as a precursor to the Sophomore review. Course previously offered as ART 2002.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2013 Non-Major Ceramics I
Description: Introduction to basic building techniques including wheel throwing, coiling, and slab construction, as well as slip and glaze application and a variety of firing processes. Exposure to historical and contemporary references. Emphasis on personal growth through technique and concept. Same course as ART 2253.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2023 Non-Major Oil Painting I
Description: The development of skills in oil painting stressing form and content, visual perception, and individual expression. Technical instruction applicable to individual problems and needs. Same course as ART 2223.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2033 Non-Major Watercolor I
Description: The development of technical skills stressing color, form, and content. Assignments cover paper preparation and support, brush handling, pigment characteristics and mixing, and all basic dry surface and wet surface painting techniques. Same course as ART 2233.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2043 Non-Major Jewelry and Metals I
Description: Fabrication and forming techniques for non-ferrous metals. Cold joinery, silver soldering, surface treatment and elementary stone setting. Applications toward either wearable or small scale sculptural format. Same course as ART 2243.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2063 Non-Major Sculpture I
Description: Explore creative expression while learning a variety of sculptural processes and techniques. Begin developing spatial sensitivity, conceptual thinking, and critical thinking through engaging with broad contemporary art themes. Same course as ART 2263.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2073 Non-Major Printmaking I
Description: Varied print processes, including monotypes, relief printmaking, and intaglio. Fundamental techniques of each medium that include inking, printing, editioning multiples, and both additive and subtractive approaches. Same course as ART 2273.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2093 Non-Major Photography I
Description: An introduction to the use of photography as an art form. Exploration of traditional and current photographic methods with an emphasis on creating a foundational understanding of the medium's core concepts and techniques. Students will shoot, process, and print their own images, which will be discussed in critique with reference to basic photographic theory. Previously offered as ART 2803. Same course as ART 2293.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2113 Life Drawing
Prerequisites: ART 1113.
Description: Introduction to life drawing with emphasis on preliminary linear construction and structural aspects of the figure, including the study of general body proportions, rapid visualization, and figure-ground relationships.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2223 Oil Painting I
Prerequisites: ART 1113 and ART 1203 and ART 1303, or consent of instructor.
Description: The development of skills in oil painting stressing form and content, visual perception, and individual expression. Technical instruction applicable to individual problems and needs. Previously offered as ART 3123. Same course as ART 2023.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2233 Watercolor I
Prerequisites: ART 1113 , ART 1203 , ART 1303 , or consent of instructor.
Description: The development of technical skills stressing color, form, and content. Assignments cover paper preparation and support, brush handling, pigment characteristics and mixing, and all basic dry surface and wet surface painting techniques. Previously offered as ART 3133. Same course as ART 2033.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2243 Jewelry and Metals I
Prerequisites: ART 1113, ART 1303; consent of instructor.
Description: Fabrication and forming techniques for non-ferrous metals. Cold joinery, silver soldering, surface treatment and elementary stone setting. Applications toward either wearable or small scale sculptural format. Previously offered as ART 3343. Same course as ART 2043.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2253 Ceramics I
Prerequisites: ART 1113, ART 1303, or consent of instructor.
Description: Introduction to basic building techniques including wheel throwing, coiling, and slab construction, as well as slip and glaze application and a variety of firing processes. Exposure to historical and contemporary references. Emphasis on personal growth through technique and concept. Previously offered as ART 3503. Same course as ART 2013.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2263 Sculpture I
Prerequisites: ART 1113, ART 1303.
Description: Explore creative expression while learning a variety of sculptural processes and techniques. Begin developing spatial sensitivity, conceptual thinking, and critical thinking through engaging with broad contemporary art themes. Previously offered as ART 3323. Same course as ART 2063.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2273 Printmaking I
Prerequisites: ART 1113, ART 1203, ART 1303, or consent of instructor.
Description: Varied print processes, including monotypes, relief printmaking, and intaglio. Fundamental techniques of each medium that include inking, printing, editioning multiples, and both additive and subtractive approaches. Same course as ART 2073.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2283 Studio Art Digital Survey
Prerequisites: ART 1103 and ART 1303 and ART 1203 or ART 2423 and ART 2413 or by consent of instructor.
Description: This studio art course is an introduction to concepts, tools and techniques related to digital technology. Students will work specifically with digital video, sound editing, digital photography, digital imaging and printing. Projects in the course will focus on fostering an introductory to intermediate level understanding of digital technologies and formats, while allowing more advanced students to incorporate media of personal interest, such as performance, assemblage, projection, and installation, as well as other hybrid and emerging art forms.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2293 Photography I
Prerequisites: ART 1103, ART 1203 and ART 1303, or consent of instructor.
Description: An introduction to the use of photography as an art form. Exploration of traditional and current photographic methods with an emphasis on creating a foundational understanding of the medium's core concepts and techniques. Students will shoot, process, and print their own images, which will be discussed in critique with reference to basic photographic theory.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2403 Illustration I
Prerequisites: ART 1113 and 2.75 graduation/retention GPA.
Description: Introduction to historic and contemporary illustration and consideration of a wide range of illustrative styles. Required experiments with media and consideration of alternate ways of illustrating a message through conceptual and compositional variations.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2413 Typography I
Prerequisites: ART 1103 and 2.75 graduation/retention GPA.
Description: An investigation of letter forms and their characteristics and a study of spacing, leading, type selection, layout alternatives, type specification, and copy fitting. Preliminary introduction to typography as a communication medium. An understanding of typographic terminology and measuring systems while developing hand skills and introducing computer technology.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2423 Graphic Design I
Prerequisites: ART 1103 and 2.75 graduation/retention GPA.
Description: Exploration of basic design principles—line, form, and color, as visual communication. Problem solving, generation of ideas, development of concepts, and the integration of word and image. Technical and presentation skills.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 2443 Art Responds to Crisis
Description: Art Responds to Crisis explores the strategies artists have used to respond to, interpret, and critique moments of crisis and conflict. This course is open to covering a variety of temporal and regional histories. Students will explore such questions as: What is the relationship between art and politics? How does art help us process or learn about moments of historical conflict? Is art necessary during times of crisis? Students will consider how artists have visually communicated about the world during moments of conflict.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 2563 American Social Dance and Visual Culture
Description: This introductory course offers a beginning-level survey of the cultural history of social dance in North America from the eighteenth century to the present. It combines study of the history, theory, and visual/material culture of social dance with physical practice of specific dance forms. Because few comprehensive written sources exist for social dance, visual art, including film, animation, paintings, sculpture, photography, and illustration, is a vital tool for understanding historic dance and its role in American society. Over the course of the semester, we will examine the visual culture of social dance in order to gain insight into its historical functions as a tool for social cohesion, intercultural exchange, protest/activism, and identity formation, among other things. Through the practice of these dance forms, we will add an experiential component to our analysis of the roles that social dance has played in American culture over time. Same course as DANC 2563.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Discussion
Department/School: Art

ART 2890 Art History Honors Add-on
Prerequisites: Consent from the art department.
Description: A guided reading and research program ending with an honors credit under the direction of a faculty member. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Honors Credit

ART 3110 Life Drawing Studio
Prerequisites: ART 2113 or consent of instructor.
Description: The development of formal and expressive aspects of drawing by direct observation of the figure and its environment. Emphasis on media experimentation, aesthetic considerations, personal concepts, and anatomy. Offered for fixed credit, 3 credit hours, maximum repeat 9.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3213 Public and Installation Art
Prerequisites: ART 1303 or permission of instructor.
Description: Intermediate level course that offers students the opportunity to explore mixed media and multi-media art production through site-sensitive and site specific projects. Lectures will include contemporary and historical examples. Students will have access to a tool shop with instruction and assistance provided. Projects are designed and created for sites outside of the classroom, allowing for individual exploration based upon interests.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Art

ART 3223 Oil Painting II
Prerequisites: "C" or better in ART 2223 or ART 2023 or consent of instructor.
Description: Oil Painting with emphasis on personal development of visual ideas and techniques.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3233 Watercolor II
Prerequisites: "C" or better in ART 2233 or ART 2033 or consent of instructor.
Description: Stresses continued growth of technical skills with an emphasis on the individual development of ideas and imagery.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3243 Jewelry And Metals II
Prerequisites: ART 2243 or ART 2043 or consent of instructor.
Description: Development of technical skills and ideas through assigned projects. Metalworking processes include casting, advanced stone setting, hinge making, and forming of metal.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3253 Ceramics II
Prerequisites: "C" or better in ART 2253 or ART 2013 or consent of instructor.
Description: Focus on either hand building or throwing techniques. Development of personal expression and technical proficiency with the material and advanced firing and glazing processes. Emphasizing contemporary ceramic issues as well as broader art concepts.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3263 Sculpture II
Prerequisites: "C" or better in ART 2263 or ART 2063 or consent of instructor.
Description: Builds on the themes, processes, and materials explored in Sculpture I. Coursework fosters experimentation to allow discovering artistic values through course projects while advancing spatial sensitivity, conceptual thinking, and critical thinking. Emphasizes historical context and contemporary art practices, allowing students to engage in critical dialogue. Previously offered as ART 3333.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3273 Printmaking II
Prerequisites: "C" or better in ART 2273 or ART 2073 or consent of instructor.
Description: Development of technical skills and ideas through assigned projects. Intaglio processes include aquatint, softground, and multiple color work. Relief processes include reduction with stencils and multiblock. Litho techniques with permission of instructor.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3293 New Genres in Studio Art
Prerequisites: ART 2283.
Description: This course is a continuation of the Studio Art Digital Survey course. New Genres is a continued, more advanced exploration of the concepts, techniques, and history of non-traditional art forms. Students will work in experimental and interdisciplinary ways with non-traditional media such as video, sound, photography, performance, writing, assemblage, and installation. Course previously offered as ART 3283.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3383 Digital Imaging
Prerequisites: ART 2283 or ART 2423 and ART 2433 or by consent of instructor.
Description: This studio art course is a continuation of the concepts, tools, and techniques related to digital technology. Students will work specifically with digital photography, digital imaging and printing. Projects in the course will focus on fostering an intermediate level understanding of digital technologies and alternate process printing formats, while allowing more advanced students to incorporate media of personal interest.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3393 Photography II
Prerequisites: "C" or better in ART 2293 or ART 2803 or ART 2093 or consent of instructor.
Description: A further exploration of the creative opportunities in photography. Students will build on the basic understanding of the medium acquired in the introductory course, and respond to assigned aesthetic and conceptual problems. In this intermediate course, students will begin to articulate ideas visually and refine their technical skills in camera operation, digital imaging software, and large format printing.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3403 Illustration II
Prerequisites: ART 2403, ART 2413, ART 2423 and portfolio review.
Description: Exploration of illustrative solutions to maximize visual interest via varied viewpoints, concepts and altered reality. Projects involving different career areas within the field of illustration. Requirements and advantages of each area.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3413 Typography II
Prerequisites: ART 2413, ART 2423 and portfolio review.
Description: Exploration of typographic communication through a variety of problems. Type as the visual solution with emphasis on its functional, decorative, and creative applications. Solution of more complex typographic problems, dealing with a large body of information via the development of grid systems.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3423 Graphic Design II
Prerequisites: ART 2413, ART 2423, and portfolio review.
Description: Use of computer and traditional methods to enhance production skills and solution of design projects from concept to the comprehensive. Evaluation and design of symbols and logos and their various applications, leading to an understanding of system design. Introduction to graphic design production and the preparation of art for reproduction.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3453 Motion Design I
Prerequisites: ART 2413, ART 2423 and portfolio review.
Description: Introduction to the basic concepts and techniques of motion design as visual communication. Students are introduced to the technical skills and critical thinking necessary for executing creative motion graphics intended to be experienced via electronic media, with an emphasis on typography, composition and design principles.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3463 Interaction Design I
Prerequisites: ART 2413, ART 2423 and portfolio review.
Description: Introduction to the basic concepts and techniques of interaction design as visual communication. Use of computer software to execute interactive design work intended to be experienced via electronic media, with an emphasis on typography, functionality and design principles.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 3513 Analyzing Visual Culture
Description: This course covers the fundamentals of analyzing art and visual culture, with a focus on developing writing skills. Appropriate for students in art history, visual arts and design, screen studies, media studies, and other humanities fields. Course will also introduce research methods and examine select critical theories.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 3543 Leonardo, Art, And Science (H)
Description: Explores the deeply entwined fields of Renaissance art and science through the lens of Leonardo's extraordinarily diverse body of work. This course will consider the broader context of anatomical study, alchemy, early modern medicine, technological innovation, and psychology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3553 Fashioning and Self Fashioning: The Renaissance Portrait (H)
Description: Exploration of portraits created in Europe during the Renaissance. Addresses self-fashioning and artifice and the portrait as the collaborative product of artist, patron and subject.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3563 History of Prints and Printmaking
Description: A survey of graphic art primarily focused on Europe and the United States, from the 15th - 20th centuries. Relief, intaglio, lithography, photography, and other graphic media. Previously offered as ART 4623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 3573 History of Photography (H)
Description: An introduction to the history of photography from its beginnings in the early nineteenth century to the present. Emphasis will be on art and documentary photography in Europe and the United States. Photographs will be studied for their aesthetic, technical, cultural, and scientific purposes. The primary goal of the course is to promote critical and theoretical thinking about photographic images, their meaning, and impact on society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3583 Introduction to Museum and Curatorial Studies (H)
Description: Historical and theoretical introduction to museum and curatorial studies. Topics include museum ethics, the function of the curator, and the changing role of the museum. Same course as HIST 3593. Previously offered as ART 2643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3600 Writing Methods In Art History
Prerequisites: Consent of instructor.
Description: A supervised research and writing project, typically concurrent with enrollment in an upper division art history course. Offered for fixed credit, 1 credit hour, maximum of 2 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 3603 History of Classical Art (H)
Description: Stylistic, philosophical, and formal qualities of art in the Classical world. The creation of the Greek ideal and its dissemination in the Roman world through architecture, sculpture, and painting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3623 History of Italian Renaissance Art (H)
Description: Architecture, sculpture, and painting in Italy, c.1300-1580. Major artists in their local contexts (e.g. Leonardo in Milan, Michelangelo in Florence, and Titian in Venice).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3633 History of Baroque Art (H)
Description: Art in 17th century Europe. Architecture, sculpture and painting of the Catholic Reformation (e.g. Caravaggio and Bernini in Italy, Velasquez in Spain, Rubens in Flanders), concluding with painting in non-sectarian, Protestant Netherlands (Rembrandt and Vermeer).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3643 History of Graphic Design
Description: Evolution of graphic communication from prehistoric times to the present. Investigation of the origins of printing and typography in Europe leading to the design of the printed page, the impact of industrial technology upon visual communication and the study of the growth and development of modern graphic design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 3653 History of 19th Century Art (H)
Description: Art of 19th century Europe-ideals, conflicts, escapes, and triumphs, beginning with the French Revolution and ending in 1900.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3663 History of American Art (DH)
Description: Visual arts in America from the Colonial period to the present. Major styles, ideas and uses of material in architecture, painting, sculpture, and design. Same course as AMST 3673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

ART 3673 History of Northern Renaissance Art
Description: Art in Northern Europe, c. 1200-1550. Emphasis on panel painting in the Netherlands (e.g. Van Eyck, Bosch), and book illustration in Germany (Durer).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 3683 History of 20th Century Art (GH)
Description: Beginning with the birth of "modernism" in the late 19th century, exploration of the fast-changing artistic styles of the 20th century: abstraction, expressionism, fantasy, realism, surrealism, and social protest. Emphasis on the relationship of art and 20th century society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ART 3693 Survey of Asian Art (H)
Description: Arts of India, China, Japan and related countries in their historical and cultural settings. Traditions of painting, sculpture and architecture from their beginnings to the modern period. Same course as ART 2693.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3713 Early Medieval Art: Saints, Martyrs, Pagans (H)
Description: Examination of the visual culture (sculpture, manuscripts, architecture, etc.) of the multicultural early Middle Ages in Europe and the wider Mediterranean world, from roughly 400 to 1050; includes Early Christian, Islamic, Byzantine, Germanic, Carolingian, Ottonian, and Anglo-Saxon artistic production.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3723 Court and Cloister: Medieval Art 1050-1400 (H)
Description: Examination of the visual culture (sculpture, manuscripts, architecture, etc.) of the later Middle Ages in Europe and the wider Mediterranean world, from roughly 1050 through 1400; includes Islamic, Byzantine, Romanesque, and Gothic artistic production. Course previously offered as ART 3613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3733 History of Latin American Art I
Description: An overview of Latin American visual culture from the Precolumbian period to the present. We consider Maya, Aztec, and Inca cultures, the colonial arts of Spanish America, the South American avante garde, Mexican muralism and surrealism, and contemporary video, performance and installation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 3743 History of Latin American Art II (GH)
Description: Exploration of modern Latin American Art, beginning with academic painting and emerging nationalisms in the nineteenth century and continuing through Mexican Muralism, modern art movements in South America, and contemporary painting, film, video, performance, and installation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ART 3753 The Arts of Spain and the Spanish World (H)
Description: The art and culture of Spain and the Spanish world, including Paleolithic art, Renaissance and Baroque works from the Iberian Peninsula and American viceroyalties, and ending with Picasso and Miro.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 3763 Art Travel Course
Description: Art courses involved with the participation of a formal or informal travel experience outside the state.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 3773 History of African American Art
Description: The history of African American visual arts and material culture. Topics might include black visual artists and movements, black art criticism, global contexts, and museum practices in relation to African American artists and/or artists of the African diaspora.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 3800 Special Topics in Art History
Description: Art history course on special subjects and various issues. Offered on campus. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 3890 Art History Honors Course
Prerequisites: Consent from the Art Department.
Description: Departmental invitation, Honors Program participation. A guided reading and research program ending with an honors under the direction of a faculty member. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Honors Credit

ART 4053 Alternative Photography
Prerequisites: ART 3393, Photography II.
Description: This photography course provides an introduction to traditional photographic processes such as silver gelatin, salt prints, cyanotype, Van Dyke, and gum bichromate. Students will learn a variety of analog photographic processes as avenues to explore current questions in the medium. Through a series of assigned readings and regular critiques, students will consider their projects from a contemporary art perspective.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4100 Drawing Studio
Prerequisites: ART 1113 and ART 1203 and ART 2113.
Description: An open medium investigation of drawing concepts, stressing personal thematic development, experimentation, and individually designed imagery. Offered for fixed credit, 3 credit hours, maximum repeat 9.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4211 BFA Studio Capstone Exhibition
Prerequisites: Must have passed the BFA Studio Capstone Exhibition Review, must have consent of instructor.
Description: Provides individual guidance and instruction necessary for mounting the BFA Studio Capstone Exhibition. This exhibition is the culminating event of the studio major's studies and a final preparation for a career in the studio arts. Enrollment must occur during the semester in which the BFA Studio Capstone Exhibition is to be mounted.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 4213 BFA Studio Capstone
Prerequisites: ART 2003, and concurrent enrollment in upper-division studio art course, or consent of instructor.
Description: The purpose of this course is to provide students with the knowledge they need to make a career in art. Using the art they are preparing for the BFA Studio Capstone Exhibition, students will develop presentation and marketing materials in line with the professional standards of the field. They will be taught how to find, recognize and pursue artistic opportunities. Previously offered as ART 4210.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4220 Oil Painting Studio
Prerequisites: ART 3223.
Description: Oil painting with emphasis on continuing personal development of visual ideas and techniques. Course previously offered as ART 4120. Offered for fixed credit, 3 credit hours, maximum repeat 9.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4223 BA Studio Capstone
Prerequisites: ART 2003 and senior standing or consent of instructor.
Description: The course provides guided assistance to BA Studio Art students in developing a professional portfolio as it relates to their career interests in the arts. Previously offered as ART 4110.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4230 Watercolor Studio
Prerequisites: ART 3233.
Description: Stresses continued growth of personal imagery with an emphasis on the development of a consistent body of work and professional portfolio. Course previously offered as ART 4130. Offered for fixed credit, 3 credit hours, maximum repeat 12.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4240 Jewelry and Metals Studio
Prerequisites: ART 3243.
Description: Emphasis on further development of personal concepts and technical skills through assigned and individual oriented projects. Broad-based exploration of advanced metalworking processes with emphasis on individual students' direction and technical needs. Course previously offered as ART 4340. Offered for fixed credit, 3 credit hours, maximum repeat 12.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4250 Ceramics Studio
Prerequisites: ART 3253.
Description: Intended for students who want to specialize in the ceramic field of art. Will include sophisticated techniques of clay, glaze and firing methods. Emphasis on creation of a unique, well researched, aesthetically concise, and technically successful body of work. Course previously offered as ART 4500. Offered for fixed credit, 3 credit hours, maximum repeat 12.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4260 Sculpture Studio
Prerequisites: ART 3263.
Description: A broad-based course which allows students to pursue individual interests using a variety of materials and processes. Emphasis on further development of concepts, skills, and techniques. Course previously offered as ART 4330. Offered for fixed credit, 3 credit hours, maximum repeat 12.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4270 Printmaking Studio
Prerequisites: ART 3273 and proficiency review or consent of instructor.
Description: A broad-based course which allows students to pursue individual interests using a variety of printmaking materials and processes. Emphasis on further development of concepts, skills and techniques. Offered for fixed credit, 3 credit hours, maximum repeat 12.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4280 Photography Studio
Prerequisites: ART 3393 or consent of instructor.
Description: The development of a personal artistic expression using photography. Through a combination of assigned and self-directed projects, this advanced course focuses on the continued development of conceptual aptitude and technical skills. The emphasis is on developing a creative body of work and engaging current and theoretical trends in the medium. Offered for fixed credit, 3 credit hours, maximum of 12 credit hours.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4420 Graphic Design Studio
Prerequisites: ART 3423 or consent of instructor.
Description: Design and production of projects suited to the professional portfolio. Discussion of practical issues including career options, resume and portfolio preparation, and interview techniques. Offered for fixed credit, 3 credit hours, maximum repeat 9.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4430 Illustration Studio
Prerequisites: ART 3403, ART 3443 or consent of instructor.
Description: Conceptual development and production of illustrations in series. Development of individual style and assembly of a professional and consistent portfolio. Offered for fixed credit, 3 credit hours, maximum repeat 9.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4450 Motion Design Studio
Prerequisites: Consent of instructor.
Description: Exploration of motion design as visual communication. Development of technical skills and critical thinking necessary for executing creative motion graphics portfolio work intended to be experienced via electronic media, with an emphasis on conceptual development and application of design principles. Course previously offered as ART 4453. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4460 Interaction Design Studio
Prerequisites: ART 3453 or consent of instructor.
Description: Exploration of the visual and technical aspects of interaction with various electronic platforms to design effective graphical user interfaces. Emphasis on quantitative and qualitative research, process, and traditional graphic design methods for creating user-centered digital environments. Offered for fixed credit, 3 credit hours, maximum repeat 9.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4493 Portfolio Capstone
Prerequisites: Senior standing and consent of instructor.
Description: Final preparation of a professional portfolio, culminating in an extensive design project and the design, organization and production of an exhibition of work. Professional study on setting fees, writing contracts, working with an agent and other business practices.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4583 Rome: The Eternal City in Art and Film (H)
Description: The idea of Rome as seen through ancient and modern visual culture. Course begins with the Augustan propaganda machine and subsequently considers the most significant imperial image-makers to follow. A major portion of the course will be devoted to more recent and modern projections of the city, from Mussolini's New Rome to Fellini's Roma. No credit for students with credit in ART 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 4593 Art of Conversion: 16th Century Art in Mexico (H)
Description: Art and architecture of the sixteenth century, including mission architecture, early altar-screens, the effect of European imports on native art production, and the role of confraternities and public ceremonies on contact-period culture. No credit for students with credit in ART 5593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 4603 History of Ancient Egyptian Art
Description: Broad survey of ancient Egyptian art and architecture from Pre-dynastic to the beginning of the Christian Era under Roman rule (4000 B.C.-320 A.D.). Discussion within the context of religious meaning and overall cultural development of ancient Egypt.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4613 Art Since 1960
Description: This course explores some of the artistic, conceptual, and theoretical developments in art since 1960. Course covers major trends in art history—including Minimalism, Pop, Performance, and Conceptual Art, Social Practice, and more. Students will consider many of the socio-political issues relevant to the study of global contemporary art. May not be used for degree credit with ART 5613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4653 History of Indian Art
Description: The history and culture of South Asia (India and Pakistan) are explored through its arts —architecture, sculpture, painting, and design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4663 History of Chinese Art (H)
Description: The arts of China in their historical, cultural, religious, and social context. Painting, sculpture, architecture, porcelain, furniture, and decorative arts. No credit for students with credit in ART 5663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures

ART 4673 History of Japanese Art
Description: Critical social, religious, and historical issues in the arts of Japan. Painting, sculpture, architecture, landscape architecture, prints, and decorative arts. No credit for students with credit in ART 5673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4683 Modern and Contemporary Art in Asia
Description: Modern and contemporary art in Asia. Special attention to the role of race, gender, and social class on artistic production. May not be used for degree credit with ART 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4693 Gender And Visual Culture
Description: Explores themes and issues surrounding gender in relation to art history and visual culture more broadly. Topics may include artists and creators, sexuality, the body, eroticism, historicizing gender, feminism and feminist theory, etc. No credit for students with credit in ART 5693.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4703 Art East and West: Biases and Borrowings
Description: Explores the complicated interaction, cultural borrowings and responses on many levels of two major world systems, the "West" (Europe and America) and the "East" (South and East Asia). Beginning with the development of the sea trade in the 16th century, the course will study, through works of art, the effect of history, politics, religious struggles, economics, trade and ethnic biases on the cultures of East and West. No credit for students with credit in ART 5703.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Art

ART 4713 The Visual Culture of the Islamic World (GH)
Description: Examines the visual culture, including art and architecture, of the Islamic world, dating from the inception of Islam in seventh-century Arabia through today. No credit for students with credit in ART 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ART 4723 History of Museums and Collecting
Description: Investigation of the history of museums and collecting practices in Western Europe and the United States from the sixteenth century to the mid-20th century. Same course as ART 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4733 Museum Education
Prerequisites: ART 1513 or ART 2643 or by permission of instructor.
Description: Introduction to the major topics in museum education, including how object based learning is used with individuals and groups. Addresses the major pedagogical issues surrounding the use of art and other objects in museums. May not be used for degree credit with ART 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4763 Native American Art and Material Culture
Description: Survey of the history and material production of the Native American tribes living within the boundaries of the continental United States and Canada. Focus on basic concepts and primary issues related to tribes of the major geographical areas: the woodland areas, which includes the Northeast and Great Lakes area, the Southeast, the Great Plains, the Southwest, the Plateau and West Coast, and the Northwest Coast. No credit for students with credit in ART 5763.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4783 Rembrandt Van Rijn
Prerequisites: ART 1503 or ART 1515 or ART 1603 or by permission of instructor.
Description: The Dutch artist Rembrandt van Rijn (1606-1669) was one of the most important and innovative painters and printmakers of the seventeenth century. This course will acquaint students with both his extensive body of work and the central critical issues that interest scholars today. Same course as ART 5783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4793 Architecture and Space in East Asia
Description: History of Architecture in East Asia from the traditional Chinese timber frame to the 20th century. Will address how architecture delivers political ideologies and structures social relationships, both symbolically and in practice. May not be used for degree credit with ART 5793.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4800 Special Studies in Art
Prerequisites: Junior standing and consent of instructor.
Description: Courses in media exploration, special subjects and current issues. Offered on campus or through extension workshops. Offered for variable credit, 1-3 credits, max 9.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 4810 Museum Internship
Description: An on-site museum experience, including exhibition selection and preparation, collection cataloging and research, and museum administration. Offered for variable credit, 1-3 credits, max 9.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 4813 Museum Exhibition
Description: Designing an exhibition that draws on the Oklahoma State University art collection. Includes museum history, theory, and curatorial practice. Same course as ART 5813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4820 Graphic Design Internship
Prerequisites: ART 3403 or ART 3423 and consent of instructor.
Description: An on-site graphic design work experience that provides professional practice under the supervision of a design professional. Offered for variable credit, 1-6 credits, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 4830 Apprenticeship
Description: Professional opportunity to work with artists of national and international reputation. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 4840 Studio Art Internship
Prerequisites: Formal written approval of Studio Art faculty sponsor and on-site supervisor.
Description: The studio art internship provides direct occupational experience in a professional arts related work environment under the direct supervision of a professional or someone of significant stature in an arts related field. A final associated paper/project is required. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 4850 Special Topics in Graphic Design
Prerequisites: ART 3423 and ART 4420 or ART 4450 or ART 4460.
Description: Course in graphic design and design media exploration, current practices, and contemporary issues. Includes specific topics such as: advanced typography, (lettering, typeface design), exhibition design, way-finding and navigational graphics, design writing workshop, magazine design, new media tools, and creative coding. Offered on campus or through extension workshops. May not be used for degree credit with ART 5850.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art

ART 4860 Art History Seminar
Description: Art history seminar courses on special subjects and various issues. Open to major and non-major students. May not be used for degree credit with ART 5860. Offered for fixed credit, 3 credit hours, maximum of 12 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4900 Directed Study In Art
Prerequisites: Junior standing and written permission of department head.
Description: Self-designed special topics in studio art or graphic design. By contract only. May not be used for degree credit with ART 5900. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 4910 Directed Study in Art History
Prerequisites: Junior standing and written consent of department head.
Description: Self-designed special topics in art history. By contract only. May not be used for degree credit with ART 5910. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 4920 Art History Symposium
Prerequisites: ART 4943.
Description: Specifically for art history majors, and typically taken during the student's final year. Students participate in a public presentation of a research paper prepared in ART 4943 (Art History Senior Capstone). Special attention is given to argument, methodology, visual, and overall presentation. Offered for fixed credit, 1 credit hour. Graded on a pass/fail basis.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Art

ART 4933 Art in Context
Prerequisites: One hour of ART 3600.
Description: Designed specifically for art history majors, and typically taken during the junior year, this course examines select critical theories and their methodological application.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4943 Art History Senior Capstone
Prerequisites: ART 1503, ART 1513, Art 2573, and one 3000- or 4000-level Art History course.
Description: Designed specifically for art history majors, and typically taken during the senior year, this course guides students through the research, writing, and presentation of a capstone research paper. Additional topics may include career preparation and professional development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4973 20th Century Chinese Art
Description: This course will explore the ways in which Chinese artists of the 20th century have defined China's history and culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Art

ART 4993 Senior Honors Project
Prerequisites: Departmental invitation, Senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis or project under the direction of a faculty member. Required for graduation with departmental honors in art.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Art
General Education and other Course Attributes: Honors Credit

ART 5000 Art History Master's Thesis
Description: Independent study course intended to provide guidance for research and writing of MA Thesis in art history. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Art

ART 5013 Theory and Methods in Art History
Description: This course examines the field of art history in terms of its historiography, research methods, critical frameworks and theoretical underpinnings. Students are expected to develop and articulate their own theoretical and methodological position in the context of and with explicit reference to contemporary praxis and theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5280 Graduate Photography
Prerequisites: Graduate Standing.
Description: The development of a personal artistic expression using photography and related media. Through a combination of assigned and self-directed projects, this advanced course focuses on the continued development of conceptual aptitude and technical skills. The emphasis is on developing a creative body of work and engaging current and theoretical trends in the medium.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Art

ART 5400 Graduate Study: Graphic Design Thesis
Description: Independent inquiry based on an original idea associated with a student's chosen area of concentration under the direction and supervision of a major professor and graduate thesis committee. Thesis requires the definition of a graphic design problem, research of case studies and visual works relevant to the thesis topic, and the creation of an outline for the thesis. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Art

ART 5410 Graduate Graphic Design Internship
Description: On-site, graphic design work experience that provides graduate level students with professional practice under the supervision of a design professional. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Art

ART 5413 Graduate Teaching Practicum in Graphic Design
Description: This course is intended to provide graduate graphic design students seeking a career in higher education with university-level teaching methods and professional practices of curriculum development, syllabus writing, clarity of thinking, and various components of professional papers and presentations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5420 Graduate Graphic Design Studio
Description: Introduction to the advanced concepts and techniques of graphic design as visual communication. Graduate students are introduced to the critical thinking necessary and technical skills for executing creative graphics work intended to be experienced via print media, with an emphasis on typography, composition and design principles. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Lab: 6-12 Contact: 6-12
Levels: Graduate
Schedule types: Lab
Department/School: Art

ART 5423 Graduate Study in Graphic Design History
Description: This course builds on foundational knowledge of graphic design history. Emphasis is placed on in-depth review and analysis of ground breaking design movements and perspectives, from modernism to contemporary era. Lectures, readings, research and other course activities will bring forth critical understanding of the relationship of history, design and culture as interconnected thread throughout time.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5440 Graduate Special Topics in Graphic Design
Description: Application of graphic design processes utilizing hybrid media and forms to address research topics. Emphasis on creative approaches to concept-driven design projects and development of a theoretical framework appropriate for graduate level work. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Lecture: 3-6 Contact: 3-6
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5450 Graduate Motion Design Studio
Description: Exploration of motion design as visual communication. Development of technical skills and critical thinking necessary for executing creative motion graphics portfolio work intended to be experienced via electronic media, with an emphasis on conceptual development and application of design principles. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Lab: 6-18 Contact: 6-18
Levels: Graduate
Schedule types: Lab
Department/School: Art

ART 5460 Graduate Interaction Design Studio
Description: Exploration of the visual and technical aspects of interaction with various electronic platforms to design effective graphical user interfaces. Emphasis on quantitative and qualitative research, process and traditional graphic design methods for creating user-centered digital environments. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Lab: 6-18 Contact: 6-18
Levels: Graduate
Schedule types: Lab
Department/School: Art

ART 5470 Graduate Study in Graphic Design
Description: Intensive graduate course of study in the fundamentals of graphic design. The course emphasizes research and analysis and the design processes that lead to creative conceptualization and final design solutions. Students are expected to demonstrate sophisticated design decisions and appropriate design solutions that demonstrate a high level of expertise and achievement to be experienced via print media. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Lab: 6-18 Contact: 6-18
Levels: Graduate
Schedule types: Lab
Department/School: Art

ART 5480 Graduate Study in Motion Design
Description: Graduate level course in motion design (also referred to as motion graphics). This course provides students with the opportunity to conduct research, develop advanced technical skills and apply critical thinking to graphic design using time based media. Students will explore the role motion design plays in shaping meaning and contributing to visual culture. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Lab: 6-18 Contact: 6-18
Levels: Graduate
Schedule types: Lab
Department/School: Art

ART 5490 Graduate Study in Interaction Design
Description: Interaction Design, as it relates to the field of Graphic Design, is the creation of a dialogue between a person and a product, system, or interplay between form, function, and technology as experienced over time. Students will explore the role of graphic design while conducting sound research in a variety of disciplines such as psychology, communication theory, and sensory integration. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Lab: 6-18 Contact: 6-18
Levels: Graduate
Schedule types: Lab
Department/School: Art

ART 5583 Rome Eternal City
Description: The idea of Rome as seen through ancient and modern visual culture. Course begins with the Augustan propaganda machine and subsequently considers the most significant imperial image-makers to follow. A major portion of the course will be devoted to more recent and modern projections of the city, from Mussolini's New Rome to Fellini's Roma. No credit for students with credit in ART 4583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5593 Art of Conversion: 16th Century Art in Mexico
Description: Art and architecture of the sixteenth century, including mission architecture, early altar-screens, the effect of European imports on native art production, and the role of confraternities and public ceremonies on contact-period culture. No credit for students with credit in ART 4593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5613 Art Since 1960
Description: This course explores some of the artistic, conceptual, and theoretical developments in art since 1960. Course covers major trends in art history-including Minimalism, Pop, Performance, and Conceptual Art, Social Practice, and more. Students will consider many of the socio-political issues relevant to the study of global contemporary art. May not be used for degree credit with ART 4613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5663 History Of Chinese Art
Description: Critical social, religious, and historical issues in the arts of China. Painting, sculpture, architecture, porcelain, furniture, and decorative arts. No credit for students with credit in ART 4663.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Art

ART 5673 History of Japanese Art
Description: Critical social, religious, and historical issues in the arts of Japan. Painting, sculpture, architecture, landscape architecture, prints, and decorative arts. No credit for students with credit in ART 4673.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Art

ART 5683 Modern and Contemporary Art in Asia
Description: Modern and contemporary art in Asia. Special attention to the role of race, gender, and social class on artistic production. May not be used for degree credit with ART 4683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5693 Gender and Visual Culture
Description: Explores themes and issues surrounding gender in relation to art history and visual culture more broadly. Topics may include artists and creators, sexuality, the body, eroticism, historicizing gender, feminism and feminist theory, etc. No credit for students with credit in ART 4693.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5703 Art East and West: Biases and Borrowings
Prerequisites: Instructor permission.
Description: Explores the complicated interaction, cultural borrowings and responses on many levels of two major world systems, the "West" (Europe and America) and the "East" (South and East Asia). Beginning with the development of the sea trade in the 16th century, the course will study, through works of art, the effect of history, politics, religious struggles, economics, trade and ethnic biases on the cultures of East and West. No credit for students with credit in ART 4703.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Art

ART 5713 Islamic Visual Culture
Description: Examines the visual culture, including art and architecture, of the Islamic world, dating from the inception of Islam in seventh-century Arabia through today. No credit for students with credit in ART 4713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5723 History of Museums and Collecting
Prerequisites: Graduate standing.
Description: Investigation of the history of museums and collecting practices in Western Europe and the United States from the sixteenth century to the mid-20th century. Same course as ART 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5730 Practicum in Curatorial Practice
Prerequisites: Graduate standing.
Description: Curatorial experience under the supervision of a museum and curatorial studies certificate program faculty member. Students will assist in the conceptualization, research and organization of an existing curatorial project or create one of their own. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5733 Museum Education
Prerequisites: Graduate standing.
Description: Introduction to the major topics in museum education, including how object-based learning is used with individuals and groups. Addresses the major pedagogical issues surrounding the use of art and other objects in museums. Same course as ART 4733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5763 Native American Art and Material Culture
Prerequisites: Permission of instructor.
Description: Survey of the history and material production of the Native American tribes living within the boundaries of the continental United States and Canada. Focus on basic concepts and primary issues related to tribes of the major geographical areas: the woodland areas, which includes the Northeast and Great Lakes area, the Southwest, the Great Plains, the Southwest, the Plateau and West Coast, and the Northwest Coast. No credit for students with credit in ART 4763.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5783 Rembrandt Van Rijn
Prerequisites: Graduate student standing.
Description: On-site museum experience, including exhibition selection and preparation, collection cataloging and research, museum education, and museum administration.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5793 Architecture and Space in East Asia
Description: History of Architecture in East Asia from the traditional Chinese timber frame to the 20th century. Will address how architecture delivers political ideologies and structures social relationships, both symbolically and in practice. May not be used for degree credit with ART 4793.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5810 Museum Studies Internship
Prerequisites: Graduate student standing.
Description: On-site museum experience, including exhibition selection and preparation, collection cataloging and research, museum education, and museum administration. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Art

ART 5813 Museum Exhibition
Prerequisites: Graduate standing or permission of instructor.
Description: Designing an exhibition that draws on the Oklahoma State University art collection. Includes museum history, theory, and curatorial practice. Same course as ART 4813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5850 Special Topics in Graphic Design
Description: Course in graphic design and design media exploration, current practices, and contemporary issues. Includes specific topics such as: advanced typography, (lettering, typeface design), exhibition design, way-finding and navigational graphics, design writing workshop, magazine design, new media tools, and creative coding. Offered on campus or through extension workshops. May not be used for degree credit with ART 4850. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Art

ART 5860 Art History Seminar
Description: Art history seminar courses on special subjects and various issues. Open to major and non-major students. May not be used for degree credit with ART 4860. Offered for fixed credit, 3 credit hours, maximum of 12 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

ART 5900 Graduate Studies in Art
Prerequisites: BA, BFA or 15 upper-division hours in a discipline; consent of instructor.
Description: Projects in art with emphasis on portfolio preparation. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Art

ART 5910 Graduate Studies in Art History
Prerequisites: BA, BFA or 15 upper-division hours in art history; consent of instructor.
Description: Advanced research in art history. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Art

ART 5920 Art History Graduate Seminar
Description: Special topics graduate seminar in art history. Offered for variable credit, 3-12 credit hours, maximum of 12 credit hours.
Credit hours: 3-12
Contact hours: Contact: 3-24 Other: 3-24
Levels: Graduate
Schedule types: Independent Study
Department/School: Art

ART 5973 20th Century Chinese Art
Description: This course will explore the ways in which Chinese artists of of the 20th century have defined China's history and culture. May not be used for degree credit with ART 4973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Art

Arts & Sciences (A&S)

A&S 1111 A&S First Year Seminar
Description: Designed for incoming freshmen in the College of Arts & Sciences. Focuses on developing as a person, scholar, and professional through the exploration of majors and careers, personal strengths, goal setting, curriculum planning, academic success strategies, and ways of connecting to others and the university. Some sections are intended for particular majors or interests. Same course as UNIV 1111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

A&S 1211 Arts & Sciences Freshman Research Scholars
Description: This seminar is for students who are participating in the Freshman Research Scholars Program. The tools needed for research and the approaches used to present the output of research will be discussed. The essential components of a research proposal will be reviewed, with examples of the approach needed for a successful proposal. Students will prepare their own research proposal in an area of interest to them. Previously offered as A&S 1222.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

A&S 2000 Special Topics
Description: Selected interdisciplinary topics presented in lecture or seminar format. Offered for variable credit, 1-7 credit hours, maximum of 10 credit hours.
Credit hours: 1-7
Contact hours: Contact: 1-7 Other: 1-7
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Arts & Science

A&S 2001 Introduction to European Studies
Description: Overview of the history, languages, and cultures of the nations currently constituting the European Union.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

A&S 2111 Career Exploration
Prerequisites: For CAS majors only
Description: This course assists students in exploring their interests, personality, and skills, identifying prospective careers and industries, and developing application materials. Students explore career interests through assessments, research, reflection, and planning. Students will have opportunities to practice writing resumes, cover letters, and other professional correspondence.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

A&S 3080 International Experience
Prerequisites: Consent of the associate dean of the college.
Description: Participation in a formal or informal educational experience outside of the USA. Offered for variable credit, 1-18 credit hours, maximum of 36 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Arts & Science

A&S 3090 Study Abroad
Prerequisites: Consent of the Study Abroad office and associate dean of the college.
Description: Participation in an OSU reciprocal exchange program. Offered for variable credit, 1-18 credit hours, maximum of 36 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Arts & Science
Additional Fees: Study Abroad fee of $250 applies.

A&S 3111 First Year Transfer Seminar
Description: Designed for incoming transfer students in the College of Arts & Sciences. Focuses on developing as a person, scholar, and professional through the strengths, goal setting, curriculum planning, academic success strategies, and ways of connecting to others and the university.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

A&S 3710 A&S Internship
Prerequisites: Consent of instructor.
Description: Directed practicum or internship experience in a professional work setting. Students must have an approved internship that will provide experience beyond that available in the classroom. Students produce written analyses of their work and learning under the guidance of the instructor and internship site supervisor. For use in special circumstances when a departmental internship course is not applicable. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Arts & Science

A&S 4000 Special Topics
Description: Selected interdisciplinary topics presented in lecture or seminar format. Some sections may be pass/fail. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Arts & Science

A&S 4013 Multidisciplinary Studies Capstone
Prerequisites: Consent of instructor.
Description: Research report or other creative activity undertaken to satisfy capstone requirement for multidisciplinary studies degree.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Arts & Science

A&S 4111 Job Search Strategies
Prerequisites: Junior standing. For CAS majors only.
Description: Identification of individual goals and transferable skills, exploration of career options, job market research, and development of employment search tools.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

A&S 4113 Research in Digital Studies
Prerequisites: Consent of instructor.
Description: Digital research project or other creative activity undertaken to satisfy capstone requirement for the Digital Studies certificate. May not be used for degree credit with A&S 4710.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Arts & Science

A&S 4710 Internship in Digital Studies
Prerequisites: Junior or senior standing; permission of instructor.
Description: Practicum or Internship that supports the Certificate in Digital Studies. Before enrolling, students have an individual contract approved by the Digital Studies Curriculum Committee. Projects should employ computing, digital discovery/curation, or multimedia production skills. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Arts & Science

A&S 5090 Study Abroad
Prerequisites: Graduate student standing, Consent of the Study Abroad office and associate dean of the college.
Description: Participation in an OSU reciprocal exchange program. Study Abroad fees apply. Offered for variable credit, 1-12 credit hours, maximum of 24 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Arts & Science

Arts Administration (AADM)

AADM 1203 Introduction to Arts Administration
Description: An introduction to the theories and practices of the successful administration of arts organizations. Topics include governance, budgeting, funding, fundraising, audience development, marketing, event planning and staffing, and relationships with artists served.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

AADM 2103 Fundraising for the Arts
Prerequisites: AADM 1203.
Description: An introduction to the theories and practices of development and fundraising for arts organizations. The course includes a study of the history of philanthropy and fundraising in the United States and their centrality to the operation of contemporary arts organizations. The course is essential for arts administrators but suitable for those who wish to pursue professional careers in development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

AADM 2500 Practicum in Arts Administration
Prerequisites: Permission of instructor.
Description: Directed study and practice in administration of an arts-related event or organization. Offered for variable credit, 1-2 credit hours, maximum of 6 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Theatre

AADM 3203 Approaches in Arts Administration
Prerequisites: AADM 1203 and AADM 2103.
Description: Broadens and deepens knowledge and skills acquired in AADM 1203, primarily through the analysis of specific arts organizations. Additional topics include law and ethics, mission statements, internal organization and external environments, revenue generation, and assessment of efficacy. Competency in the theories and practices introduced in this course are necessary for assuming leadership positions in arts organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

AADM 3500 Special Topics in Arts Administration
Description: Specialized topics in Arts Administration. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

AADM 4123 Entrepreneurship and the Arts
Description: Introduces entrepreneurship as a way of thinking and acting within the arts, including fine art, theatre, music, and design. Key entrepreneurial competencies are explored, including opportunity recognition, risk management, resource leveraging, and innovation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

AADM 4203 Senior Project in Arts Administration
Prerequisites: Senior standing and consent of instructor.
Description: A guided research, practicum, or internship project ending with a thesis or report under the direction of a faculty member.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

AADM 4403 Senior Honors Project in Arts Administration
Prerequisites: Senior standing, consent of instructor. Honors Program participation.
Description: A guided research, practicum, or internship project ending with an honors thesis or report under the direction of a faculty member, with second faculty committee member. Required for graduation with departmental honors in arts administration.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre
General Education and other Course Attributes: Honors Credit

Astronomy (ASTR)

ASTR 1013 The Solar System (N)
Description: Recent discoveries about the sun, planets, moons, asteroids, meteoroids, and comets; formation and future of the solar system; interplanetary travel, colonization, terraforming, and the search for extraterrestrial life. Offered in the fall semester. Previously offered as ASTR 1104 and ASTR 1014.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics
General Education and other Course Attributes: Natural Science Reasoning
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

ASTR 1023 Stars, Galaxies, Universe (N)
Description: Recent discoveries about the structure and life cycles of stars, galaxies and the universe; the search for extraterrestrial intelligence; interstellar travel, black holes, wormholes, and tachyons. Offered in the spring semester. Previously offered as ASTR 1024.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics
General Education and other Course Attributes: Natural Science Reasoning

ASTR 2123 Observational Astronomy
Prerequisites: PHYS 1023, PHYS 1214
Description: This course provides an overview of fundamental techniques and key findings in modern observational astronomy, with a focus on telescopes, detectors, imaging, and spectroscopy. Special attention is given to discoveries across various wavelengths, including radio, optical, infrared, X-ray, and gamma-ray astronomy with explanations of theoretical models behind these discoveries. Additionally, the course covers methods for analyzing contemporary astronomical data from James Webb Space Telescope, Hubble Space Telescope, Chandra X-ray Observatory, and Fermi Large Area Telescope.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

ASTR 3023 Astrophysics
Prerequisites: PHYS 2114 or consent of instructor; ASTR 1024 recommended.
Description: Analysis and interpretation of astronomical phenomena in terms of the laws of physics; e.g. stellar structure, the interstellar medium, galaxies and cosmology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

ASTR 4010 Observatory Research
Prerequisites: PHYS 2114 and consent of instructor; ASTR 1013 or ASTR 1023 recommended.
Description: Team execution of multi-semester observing programs with electronic detectors at OSU's off-campus observatory. Introduction to digital image processing and analysis. Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Physics

Aviation and Space Education (AVED)

AVED 1114 Theory of Flight
Description: Private pilot ground school. Course includes theory of flight, principles of navigation, meteorology, and Federal Aviation Regulations. Preparation for FAA private pilot computer-based knowledge exam. Previously offered as AVED 1113.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 1210 Private Flight Laboratory 1A
Description: Flight lab for beginning pilots. Course contains first part of FAA Private Pilot Certification. Training conducted under 14 CFR 141. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours. May not be used for degree credit with AVED 1222.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 1210 Flight Lab fee of $350 applies.

AVED 1222 Private Flight Laboratory I
Description: Flight lab for beginning pilots. Course contains first part of FAA Private Pilot Certification. Training conducted under 14 CFR 141. Course previously offered as AVED 1221.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 1222 Flight Lab fee of $700 applies.

AVED 1230 Private Flight Laboratory 2A
Prerequisites: AVED 1222 or AVED 1210
Description: Flight lab for beginning pilots part two. Course contains second part of FAA private pilot certification. Training conducted under 14 CFR. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours. May not be used for degree credit with AVED 1232.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 1230 Flight Lab fee of $350 applies.

AVED 1232 Private Flight Laboratory II
Prerequisites: AVED 1222 or AVED 1210.
Description: Course contains second part of FAA Private Pilot Certification. Training conducted under 14 CFR 141.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 1232 Flight Lab fee of $700 applies.

AVED 1403 Advanced Theory of Flight
Prerequisites: AVED 1114 and passed FAA Private Pilot Examination.
Description: Advanced navigation, aircraft performance and meteorology, and introduction to crew resource management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 2112 Secondary Flight (H)
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation
General Education and other Course Attributes: Human Heritage & Cultures

AVED 2120 Intermediate Flight Laboratory 1A
Prerequisites: AVED 2133 or AVED 2130.
Description: Professional Pilot Course emphasizing IFR cross country operations. Flight instruction conducted under Part 141. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours. May not be used for degree credit with AVED 2121 or AVED 2122. Special fee required.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 2120 Flight Lab fee of $350 applies.

AVED 2121 Intermediate Flight Laboratory
Prerequisites: AVED 2133 or AVED 2130.
Description: Professional Pilot Course emphasizing IFR cross country operations. Flight instruction conducted under FAR Part 141. Special fee required. May not be used for degree credit with AVED 2120. Previously offered as AVED 2122.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 2121 Flight Lab fee of $700 applies.

AVED 2130 Instrument Flight Laboratory 1A
Prerequisites: AVED 1222 or AVED 1210, and AVED 1232 or AVED 1230.
Description: Professional Pilot Course required for FAA instrument rating. Flight instruction conducted under FAR Part 141. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours. May not be used for degree credit with AVED 2133.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 2130 Flight Lab fee of $233 applies.

AVED 2131 Conventional Landing Gear Systems
Prerequisites: AVED 1232 Primary Flight Lab II.
Description: Course provides the knowledge and practical experience required to demonstrate proficiency in conventional landing gear configured aircraft. Completion of this course will endorse the student under Federal Regulation Part 61 for Pilot-In-Command operation for Tail Wheel aircraft. Requires flight instruction conducted under FAA FAR Part 141.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 2133 Instrument Flight Laboratory
Prerequisites: AVED 1222 or AVED 1210 and AVED 1232 or AVED 1230.
Description: Professional Pilot Course required for FAA instrument rating. Flight instruction conducted under FAR Part 141. Previously offered as AVED 2132.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 2133 FLight Lab fee of $700 applies.

AVED 2140 Commercial Maneuvers Flight Laboratory 1A
Prerequisites: AVED 2122 or AVED 2120.
Description: Professional Pilot Course emphasizing Commercial practical test maneuvers. Flight instruction conducted under Part 141. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours. May not be used for degree credit with AVED 2142.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 2140 FLight Lab fee of $350 applies.

AVED 2142 Commercial Maneuvers Flight Lab
Prerequisites: AVED 2122 or AVED 2120.
Description: Professional Pilot Course emphasizing Commercial practical test maneuvers. Flight instruction conducted under FAR Part 141.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 2142 Flight Lab fee of $700 applies.

AVED 2162 Single Engine Commercial Flight Laboratory
Prerequisites: AVED 2142.
Description: Professional Pilot Course emphasizing single engine maneuvers and procedures, including Commercial certification with Single Engine Rating. Flight instruction conducted under FAR Part 141.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 2162 Flight Lab fee of $700 and AVED 3342 Flight Lab fee of $700 apply.

AVED 2213 Theory of Instrument Flight
Prerequisites: AVED 1403.
Description: Instrument flight rules, the air traffic system and procedures, the elements of forecasting weather trends. Preparation for FAA instrument computer-based knowledge exam. Previously offered as AVED 2214.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 2313 Theory of Commercial Flight
Prerequisites: Passed Private Pilot Knowledge Exam.
Description: Advanced aircraft systems, aerodynamics, federal aviation regulations, airports and airspace, navigation, and performance. Preparation for FAA Commercial Pilot Written Examination.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 2513 Aviation Career Planning and Development
Description: Assessment of career interests and aviation job opportunities that match those interests. Development of an academic and career learning and development plan consistent with identified interests.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3113 History of Aviation
Description: History of aviation from its early developments to the present. Historic events and the role of government as they relate to the evolution of the regulatory infrastructure of the aviation industry. Previously offered as AVED 2113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3231 Theory of Multi-Engine Flight
Prerequisites: Private Pilot Certificate.
Description: Aeronautical theory and information required for operating the multi-engine airplane safely, efficiently and within its specified limitations. Emphasis on aerodynamics and multi-engine emergencies.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3243 Human Factors in Aviation
Description: The study of people interacting with the aviation environment. Individual and group performance, equipment design, physical environment and procedure development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3333 Advanced Aircraft Systems
Prerequisites: AVED 2313.
Description: Professional Pilot Course emphasizing multiengine operations, including Commercial certification with Multiengine Rating. Flight instruction conducted under FAR Part 141. Special fee required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3342 Multiengine Commercial Flight Laboratory
Prerequisites: AVED 2142 or AVED 2140
Description: Professional Pilot Course emphasizing multiengine operations, including Commercial certification with Multiengine Rating. Flight instruction conducted under FAR Part 141. Previously offered as AVED 3341.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 3342 Flight Lab fee of $700 and AVED 2162 Flight Lab fee of $700 apply.

AVED 3433 Aviation/Aerospace Ethics
Description: Ethical decision-making as applied to the aviation and aerospace industry, an industry with narrow tolerance for error in terms of human life and economic impact. Awareness of aviation ethical issues and associated decision-making skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3443 Aviation Legal and Regulatory Issues
Description: Insight pertinent to federal governing bodies in addition to local and international laws forming the present structure of aviation law. Practices and pitfalls in aviation activities and a basic legal research capability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3453 Aviation/Aerospace Security Issues
Description: Analysis of the legal and regulatory responses to changing threats to aerospace security. Review of technological solutions for airports and aircraft.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3463 Aerospace Maintenance and Safety
Description: Identification and management of the human errors encountered in all aspects of aircraft maintenance operations. Case studies of maintenance-related accidents: line, hangar, and overhaul maintenance. The role of quality control and quality assurance are also examined as tools in reducing maintenance error.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3473 OSHA for Aerospace Managers
Description: Occupational safety and health requirements within the aerospace industry. History of OSHA, OSHA regulations relative to aerospace organizations along with recent inspection results and published violations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3483 Airport Passenger and Baggage Screening
Description: The history of airport security, the laws and agencies tasked with aviation security and the passenger and baggage screening technologies currently in use or being tested in airports. The role of technology in the aviation layered security program will be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3493 Analysis of Aviation Security Countermeasures
Description: A comprehensive approach to identification and analysis of security countermeasures in the Aviation industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3513 Aviation/Aerospace Management Principles
Description: Managing the major elements of the aviation/aerospace industry, including aircraft manufacturing and air transportation system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3523 Airport Planning and Management
Description: Overview of the major functions of airport management, including master planning. Study of the socio-economic effects of airports on the communities they serve.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3533 Aircraft Turbine Engine Operation
Description: Principles of physics and gas laws pertaining to turbine powered aircraft operation. Turbine power plant systems theory with emphasis on safe and efficient operation of turbine powered aircraft.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3543 Aerospace Organizational Communications
Description: Aerospace communication to aid aviation students in proper use of written and verbal skills needed in various aerospace leadership roles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3563 Aviation Marketing
Description: Marketing aviation products for the major elements of the aviation industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3573 Aviation/Aerospace Finance
Description: Financing the major elements of the aerospace industry, including general aviation, aircraft manufacturing and airports.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3623 Airport Network Security
Description: Comprehensive evaluation of the airport network landscape to include evaluation and mitigation of potential threats to the overall airport environment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3663 Aerospace and Air Carrier Industry
Description: Broad understanding of the air transportation industry and an in-depth knowledge of the organizational structures, managerial functions and operational aspects of today's major, national, and regional air carriers. Historical perspectives, regulators and associations, economic characteristics, labor relations and marketing of modern air carriers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3773 Underrepresented Populations in Aviation and Space (D)
Description: This course will identify the current issues facing the aviation and aerospace industry, and why inclusiveness within the industry matters even more today, as well as in the future. Explore the numerous struggles that underrepresented populations overcame to achieve their successes; and examine the many contributions that underrepresented populations made to the U.S. aviation and aerospace industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation
General Education and other Course Attributes: Diversity

AVED 3883 Space Flight
Description: A broad understanding and an in-depth knowledge of space flight and exploration of outer space. Emphasis will be placed on a thorough historical review and examination of the types of people and technological advancements involved in space exploration and flight.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3913 Planetary Sciences
Description: A grand tour of the classical planets, minor planets, moons, asteroids, comets, the Sun and more. The course will cover the physical sciences utilized within the greater field of planetary sciences (e.g. Earth sciences, chemistry, physics, astronomy, and biology) in order to aid students' learning of course material. Within the grand tour, focus will be placed on major scientific results of telescopic and spacecraft missions, as well as laboratory and field measurements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 3993 Aviation/Aerospace Supply Chain Management
Description: Management of aviation/aerospace supply chain processes and performance. Encompass the processes associated with the production of goods and services, including the movement of raw materials, inventory, and finished products. Introduce a variety of industry examples and cases related to aviation/aerospace domestic and global demand-driven supply chains to understand and evaluate the vital role of supply chain management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4100 Specialized Studies in Aviation
Description: Independent studies, seminars, and training within selected areas of aviation. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 4103 Aerospace Distribution, Warehousing and Transportation
Description: Aerospace logistics concepts and the management of aerospace distribution activities ranging from top management planning to warehousing and shipping.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4113 Aviation Safety
Description: Flight safety including studies in human factors, weather, aircraft crashworthiness, accident investigation, and aviation safety programs. Elements of aviation safety and flight operations (private flying, flight instruction, and business flying) and commercial aviation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4123 Aerospace Depot Maintenance
Description: Aerospace depot maintenance operational and budget issues related to Economic Order Quality, Materials Requirement Planning, Benefit Cost Analysis, repair expenditures, fleet flight hours, transport modules, handling, shipping and other activities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4133 Principles of Flight Instruction
Description: Preparation for the FAA Fundamentals of Instructing and Flight Instructor Knowledge Exams, as well as preparation for the CFI Initial Practical Test.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4143 Government Operations and Interfaces in Aerospace Management
Description: Government and its impact on aerospace management decisions related to logistics, inventory management, production, and operations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4153 Aerospace Sustainment
Prerequisites: Senior standing.
Description: A capstone course requiring application of all elements of the supply-chain management process to an aerospace organizational problem or project.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4163 FAA and Aerospace Logistics Regulations and Requirements
Description: Government regulations and requirements and the impact of those requirements on the aerospace supply chain management processes using case scenarios related to logistics, aviation, operations, procurement and the environment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4173 Aerospace Logistics Quality Programs
Description: Logistics quality programs, including TQM, Kaizen, Lean, Six Sigma, and ISO 9000 in aerospace organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4193 Aerospace Human Resource Management and Aerospace Workforce Acquisition
Description: Workforce planning techniques to strengthen knowledge retention practices within the aerospace industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4200 Internship in Aviation
Description: Individually supervised internship in aviation career areas. Directed field experience related to the participant's area of concentration. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 4223 Turbine Aircraft Transition
Prerequisites: AVED 3341, AVED 3333, AVED 4353 and AVED 4703.
Description: Fundamental flight and operating procedures of turbine engine aircraft.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4230 Flight Instructor Flight Laboratory 1A
Prerequisites: AVED 2142 or AVED 2140, and AVED 4133.
Description: Dual flight instruction to meet the requirements for the FAA flight instructor: airplane certificate. Flight instruction conducted under FAR Part 141. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours. May not be used for degree credit with AVED 4232. Special fee required.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 4230 Flight Lab fee of $350 applies.

AVED 4232 Flight Instructor: Airplane Flight Laboratory
Prerequisites: AVED 2142 or AVED 2140, and AVED 4133.
Description: Dual flight instruction to meet the requirements for the FAA flight instructor: airplane certificate. Flight instruction conducted under FAR Part 141. Previously offered as AVED 4231.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 4232 FLight Lab fee of $700 applies.

AVED 4303 Aviation Weather
Prerequisites: GEOG 3033.
Description: Familiarization with weather products needed to enhance flight safety.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4331 Flight Instructor: Instrument Flight Laboratory
Prerequisites: AVED 4232.
Description: Dual flight instruction to meet the requirements of adding an instrument flight instructor rating to the flight instructor certificate. Flight instruction conducted under FAR Part 141.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 4331 Flight Lab fee of $260 applies.

AVED 4333 Advanced Aircraft Performance
Description: A study of advanced aircraft performance including appropriate physical laws, atmospheric properties and power plant technology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4343 Geospatial Technologies for Aerospace Managers
Description: Using geographic information systems (GIS) and other geospatial technologies to effectively manage airports, including project management, maintenance, safety and security, noise and obstruction management, and environmental management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4353 Cockpit Automation
Prerequisites: AVED 2133.
Description: A study of aircraft "glass cockpits", including performance management, navigation and guidance, automatic flight control, flight instrument displays, and crew advisory and warning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4413 Aviation Terrorism and Asymmetrical Warfare
Description: Origins of modern terrorism and asymmetrical warfare as it related to current aviation security issues. A historical perspective to the headlines of today providing an understanding needed in making future security decisions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4423 Aviation Security Organizations and Law
Description: Understanding how security systems and law are organized and managed. Problems facing security management, including recruiting, screening, and hiring of security personnel. Problems associated with 24/7 operations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4433 Airport Safety Inspections
Description: Safety requirements of U.S. general aviation airports. Elements of the 5010 airport inspection program, FAA advisory circulars, and other pertinent documents.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4513 Aviation Operations Management
Prerequisites: AVED 3513 and AVED 3573.
Description: Application of operational management theory and practices within the aviation/aerospace industries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4523 Airport Certified Member Preparation
Prerequisites: AVED 3523.
Description: Course focus is to earn knowledge necessary to successfully complete the AAAE Certified Member (CM) designation examination. Comprehensive evaluation of airport management and leadership issues to include administration, air service development, construction, finance, legislative affairs, maintenance, marketing and communications, operations, planning, and security.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4571 FFA Airplane Single Engine Sea
Prerequisites: AVED 2313, FAA COMM ASEL.
Description: Course provides the knowledge and practical experience required to pass a COMMERCIAL Single Engine Sea (ASES) FAA practical examination to add the ASES rating to an existing COMMERCIAL Single Engine Land (ASEL) license. Requires flight instruction under FAA FAR Part 141.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 4643 Aviation Navigation Global Positioning Systems
Description: Overview of the theory and operation of the GPS in the private and public sector.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4653 International Aerospace Issues (G)
Description: Fundamental knowledge, comprehension and abilities to apply, analyze, synthesize and evaluate international aerospace issues, including trends in security, safety, technology, and organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation
General Education and other Course Attributes: International Dimension

AVED 4663 Aerospace Leadership
Description: Leadership theories and practices applicable to the aerospace environment and the types of leadership skills required for 21st Century aerospace organizational leaders.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4703 Crew Resource Management
Prerequisites: AVED 2133 and AVED 2142.
Description: Discovering how resource management applies to crew behavior in aviation. Special emphasis on decision-making, judgment, teamwork, stress management, situation awareness, leadership, and workload management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4713 Unmanned Aircraft Pilot Laboratory
Prerequisites: AVED 1114.
Description: Aeronautical theory, information and piloting skills will be utilized for operating an unmanned aircraft safely, efficiently and within its specified limitations. Classroom and laboratory experiences are designed for the students to gain the necessary skills to operate an unmanned aircraft safely.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Educ Found Leadersh & Aviation

AVED 4771 Flight Instructor: Multi-Engine Flight Laboratory
Prerequisites: AVED 4232.
Description: Dual flight instruction to meet the requirement for adding a multi-engine flight instructor rating to the flight instructor certificate. Flight instruction conducted under FAR Part 141. Special fee required.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: AVED 4771 Flight Lab fee of $260 applies.

AVED 4813 Air Transportation Compliance
Description: Regulatory requirements in the management of air transportation and logistics operations including the shipment of hazardous materials in domestic and international transport, U.S. Customs import/export compliance, and Transportation Safety Administration (TSA) requirements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4883 Capstone Course in Aviation Management
Prerequisites: Aviation Management major with senior status.
Description: Applies knowledge and issues obtained in prior aviation courses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4943 Basic Aircraft Accident Investigation
Description: A study of statutes, regulations and regulatory agency requirements that influence aircraft accident investigation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4953 Corporate and General Aviation Management
Description: Study of management principles and practices of corporate and general aviation. Equipment acquisition, legal requirements, government regulations, flight operations, aircraft maintenance, management and investment decision-making.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4963 Airport Design
Description: Overview of airport planning and development parameters, airport design considerations, economic impact of airport development, and a global examination of airport expansion projects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4983 Aerospace Industry Hazardous Materials or Dangerous Goods
Description: Regulatory requirements and compliance issues in managing aerospace industry hazardous materials and dangerous goods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 4990 Pilot Proficiency Flight
Description: Required for students entering the aviation education program who possess all FAA certificates/ratings required for the aviation sciences degree. Offered for variable credit, 1-2 credit hours, maximum of 4 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 4993 Aviation Labor Relations
Description: Aviation industry laws, regulations, and procedures for management and organized labor from historical through current perspectives. Focus on economic, legal, political, and public policy factors in aviation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5000 Master's Report or Thesis
Prerequisites: Consent of adviser.
Description: Students studying for a master's degree enroll in this course for a total of 3 credit hours if writing a report or 6 hours if writing a thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 5020 Seminar in Aerospace Education
Prerequisites: Consent of instructor.
Description: Individual research problems in aerospace education. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 5053 Guided Reading and Research
Prerequisites: Consent of instructor.
Description: Guidance in reading and research required for the MS in aviation and space program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5103 Aviation Career Development
Description: Aviation career development in private and public aviation organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5113 Aerospace Safety Programs
Prerequisites: AVED 4113.
Description: A detailed examination of risk management and accident prevention in the aerospace industry. Organization and operation of safety programs including OSHA requirements, performance measurements, cost analysis, and systems safety analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5153 Capstone in Aerospace Research
Prerequisites: AVED 5053.
Description: The final culminating project intended to be an in-depth application of the knowledge and skills acquired from the MS Aerospace Education curriculum.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5200 Graduate Internship in Aviation and Space
Description: Directed field experiences in aerospace education for master's students. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 5203 Aeromedical Factors
Prerequisites: AVED 3243.
Description: The study of aeromedical factors that influence pilot performance. The study of life support equipment designed to increase aviation safety.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5303 Aviation and Space Quality Issues
Description: A study of the practice and research involved in implementing aviation and space quality issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5333 Aircraft Performance
Description: Operational flight performance issues, especially transition from propeller-driven to jet aircraft. Use of flight simulation software to determine optimal speeds for climb, descent, range and maximum endurance of a specific aircraft model.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5363 Aircraft Systems
Description: Flight management systems, data exchange busses, computerized flight control systems, airframe environmental systems, electrical, pressurization, fuel and icing. Earlier generation aircraft systems contrasted with modern aircraft systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5403 Passenger Screening Technology
Description: Understanding of the technologies currently in use or being tested in airports. Passenger screening technologies and their role in establishing a layered security program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5413 Landside Security Technologies
Description: Technologies available for protecting the landside of the airport. Access control systems, blast protection and mitigation planning, perimeter security technologies and biometric technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5423 Security Planning Audits and NIMS
Description: The management of a security program. Written security plans, security audits, emergency management, and the National Incident Management System.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5433 General Aviation and Cargo Security
Description: Overview of airport operations: regulatory history of air transportation, aviation forecasting, capacity and delay issues at airports, environmental issues, airport emergency procedures and aircraft rescue and fire-fighting, and airport system and master planning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5443 International Aviation Security
Description: Civil aviation security structure required of all airports and airlines engaged in international civil aviation operations. Focuses on the requirements of the International Civil Aviation Organization, specifically ICAO Annex 17.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5453 Advanced Aviation Security
Prerequisites: Graduate standing.
Description: In-depth look at aviation security. Development of a greater understanding of problems associated with maintaining a secure aviation transportation industry. Familiarity with the history of attacks against aircraft, airports and other aviation facilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5463 Aerospace Risk Assessment
Description: The risks, threats, and vulnerabilities associated with aviation/aerospace assets, and associated decision-making processes. Risk management principles and utilizing cost-benefit analysis and other tools and methodologies applicable to aviation and aerospace challenges.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5473 Aerospace Education and Training Effectiveness
Description: Curriculum design and instructional effectiveness for aviation/aerospace educators and training professionals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5543 Advanced Aerospace Communications
Description: Interdisciplinary area of study drawing from previous knowledge and experience in effective management and leadership communication to meet the unique demands of the field of aviation. A broad range of academic disciplines and technical experience guiding aviation professionals in the refinement of personal, team and organizational communications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5553 Aerospace Proposal and Procurement
Description: Analysis of aerospace proposal writing and federal grant development including the basics of government acquisition and procurement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5563 Aerospace Leadership and Management
Description: Introductory course on leadership and management issues in the highly volatile aerospace environment. Introduction to management and leadership theory of the past, and exploration of the aviation environment of the future.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5573 Aerospace Defense Acquisition
Description: Analysis of the Department of Defense (DoD) acquisition process, including the basics of acquisition management and the life cycle of a defense contract from inception to disposal. Phases of acquisition include: concept exploration, development, production, fielding and deployment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5593 Influencing Public Policy in the Aerospace Industry
Description: The aerospace legislative process, researching draft legislation, tracking state and federal legislation, communicating with legislators identifying the fiscal impact and benefits.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5663 Issues in the Airline/Aerospace Industry
Description: The components, participants, activities, characteristics, scope and economic significance of the air carrier industry and its major segments. The effects of regulation, competition, marketing, manufacturing and environmental control.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5720 Current Issues in Aerospace Education
Prerequisites: Consent of instructor.
Description: Current issues in aerospace education. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 5773 Historical Significance of Aviation
Description: Humankind's attempt to conquer the skies from the earliest accomplishments in aviation to the aircraft of tomorrow. Profiles the way people, technology, and events have shaped the modern world of aviation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5783 History of Human Space Flight
Description: A historical view of human space flight starting in the 1950s with the Space Race to the early 2010s when the Space Shuttle was retired. Topics span the start of the Space Race, JFK's charge to put a human on the Moon, the Mercury, Gemini, and Apollo programs, space stations (with a focus on the International Space Station), and the Space Shuttle program. Emphasis will be placed on an examination of the people and technological advancements involved in space flight.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5793 Future of Space Flight
Description: An examination of NASA's and other space agencies' plans for future space flight, including both human missions and robotic missions. Includes an overview of commercial space flight, its beginnings and current endeavors, as well as theoretical examination of the logistical issues regarding the colonization of the Moon, Mars, or other planetary bodies. Emphasis will be placed on an examination of the people and technological advancements needed for future space flights.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5813 Earth Observation Systems
Prerequisites: GEOG 4333.
Description: A study of systems orbiting earth that collect data on the land and atmosphere.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5823 Space Science
Description: A study of the sun, inner and outer planets, asteroid belt, space probe exploration, orbital mechanics and missions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5850 Directed Readings in Aerospace Education
Prerequisites: Consent of instructor.
Description: Directed studies in aerospace education. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 5883 Aviation Economics
Description: The economic significance of the air carrier industry and its major segments. The effects of regulation, competition, schedules, marketing and environmental control.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5893 Aerospace Executive Decision Making
Description: Application of concepts and lessons of executive decision leadership within the context of the aerospace environment. Utilization of problem solving skills and leadership lessons of the 21st century aerospace leader.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5910 Practicum in Aerospace Education
Prerequisites: Consent of instructor.
Description: Directed observation and supervised clinical experiences in aerospace education. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 5953 Labor Relations in Aviation and Aerospace
Description: Labor laws, regulations, and labor-management relations in the U.S. aviation and aerospace industry, underlying the air carriers, public airport infrastructure, and related government employers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5963 Airport Operations
Prerequisites: Graduate standing.
Description: Extensive overview of airport operations. Familiarity with the regulatory history of air transportation, airports, the Federal Aviation Administration, and the Transportation Security Agency. Introduction to a wide variety of organizational structures found at U.S. airports.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5973 Aerospace Law
Description: Study of the legal system as it relates to aerospace law and governance of the aviation industry. Previously offered as AVED 4973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 5993 Ethics in Aviation
Description: Learning how to protect vital interests and maintain ethical control in highly regulated environments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6000 Doctoral Thesis
Description: Required of all candidates for the EdD in applied educational studies. Credit awarded upon completion of the thesis. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

AVED 6103 Doctoral Seminar in Aerospace Education
Description: Individual research problems in aerospace education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6203 Aviation Physiology
Prerequisites: AVED 5203 or equivalent.
Description: The study of the complexities of pilot performance as it relates to human physiology, human factors and aviation safety.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6303 The Application of Qualitative Methods in Aviation Research
Description: An examination of the application of qualitative research methodologies and associated field work with an emphasis in aviation and aerospace.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6313 Administration of Aviation Institutions
Description: A study of the organization and administration of public and private aviation institutions. Study of the impact of economic and governmental system on these institutions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6413 Development of Air and Space Flight
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6423 Certification of Airplanes
Description: A study of the practices and research involved in the certification of airplanes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6443 Certification of Rotorcraft
Description: A study of the practices and research involved in the certification of rotorcraft.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6553 Foundations of Airline Executive Leadership
Description: History of airline leaders who had a significant impact on the U.S. air transportation industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6613 Aviation Executive Development
Description: A study of the styles of aviation executives in private and public aviation organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6773 Applied Aviation and Space Research
Prerequisites: Consent of instructor and approval of student's advisory committee.
Description: Action research topics in aviation and space identified by the aerospace industry with emphasis upon publications in aviation and space refereed journals and trade publications. Previously offered as AVED 6774.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6883 Doctoral Internship in Aviation and Space
Prerequisites: Consent and approval of student's advisory committee.
Description: Directed field experiences in aerospace education for doctoral students. Previously offered as AVED 6880.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6943 Aviation Regulatory Law
Description: A study of the practical application and research of the FAA regulatory process and associated case law.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

AVED 6963 Advanced Aircraft Accident Investigation
Prerequisites: AVED 4943.
Description: Application and practice of the different statutes, regulations, and regulatory agency requirements that influence aircraft accident investigations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

Biochemistry (BIOC)

BIOC 1113 Drugs, Medications and Human Well-Being (N)
Description: Influence of medications and illegal drugs on our health. Explores the medications used to treat cancers, diabetes, microbial infections, heart and mental diseases. Abused drugs, such as alcohol, caffeine, opioids and cannabis and their effects are also covered. Course is designed for non-majors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology
General Education and other Course Attributes: Natural Science Reasoning

BIOC 1990 Freshman Research in Biochemistry and Molecular Biology
Description: An introduction to biochemical research through guided work on a relevant experimental problem. Offered for variable credit, 1-2 credits, max 2.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Biochem & Molecular Biology

BIOC 2101 The Experiments Behind the Facts of Real Science
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and CHEM 1515.
Description: Introduction to research though the study of primary research papers.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 2202 Medicine and Molecules
Description: Examination of specific diseases at all scales, from the biology of the causal agent to global impacts. The molecular biology of the agent, interactions with the human body, and the etiology, epidemiology, history and current state of the disease, ethical considerations, and prospects and cures.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 2344 Chemistry and Applications of Biomolecules
Prerequisites: CHEM 1225 or CHEM 1515.
Description: A descriptive survey of organic functional groups and biomolecules. Mode of formation and function of these molecules in microorganisms, plants and animals as they relate to biotechnology, environmental sciences and health related issues. A terminal course for students in applied biological science education. Not recommended for pre-professional students or students planning graduate study in biological sciences.
Credit hours: 4
Contact hours: Lecture: 3 Contact: 4 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Biochem & Molecular Biology

BIOC 2352 Fundamental Biochemistry
Prerequisites: BIOC 1114 and CHEM 1515.
Description: Connect knowledge of organic chemistry to biochemistry to better understand and appreciate the chemical principles in forming bimolecular structures and functions.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 2890 Introductory Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental introductory honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated courses. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology
General Education and other Course Attributes: Honors Credit

BIOC 3003 Hypothesis-Driven Undergraduate Research
Prerequisites: Consent of instructor.
Description: Directed research projects with faculty members in biochemistry and molecular biology. Identify a research question, develop a hypothesis, experimental approach, perform the experiments, and summarize their results in oral and written forms.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Biochem & Molecular Biology

BIOC 3153 Synthetic Biology
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: Engineering of living systems at the molecular, cellular, and organismal levels: Origin of cellular life; reading and writing DNA; enzyme evolution; metabolic engineering. Applications to current and future biotechnologies in agriculture and medicine: Food and drug synthesis; biofuels; vaccines. This cross-listed course is designed to satisfy upper division elective requirements for students majoring in biochemistry or microbiology. Same course as MICR 3053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 3162 Synthetic Biology Laboratory Course
Prerequisites: BIOL 1114 or BIOL 1111 and BIOL 1113 and CHEM 1515
Description: Computer and laboratory excises in synthetic biology including design of genetic circuits, CRISPR-Cas systems. Students will create and test these designs using industry-standard molecular biology techniques. Students are strongly encouraged to co-enroll in BIOC/MICR 3153 using the appropriate prefix according to their major. Same course as MICR 3162.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Biochem & Molecular Biology

BIOC 3223 Physical Chemistry for Life Sciences
Prerequisites: CHEM 1515, (MATH 2123 or MATH 2144), and (PHYS 1114 or PHYS 2014) or consent of instructor.
Description: Classical and statistical thermodynamics with applications to pure systems, solutions and electrochemistry; transport; chemical and enzyme kinetics, quantum chemistry of structure and chemical bond; and spectroscopy all with emphasis on biological applications. Previously offered as BIOC 4224 and BIOC 3224.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 3523 Biochemistry of Disease at the Cellular Level
Prerequisites: BIOC 3653 or BIOC 3713 and MICR 3033 and BIOL 3023 or ANSI 3423 or PLNT 3554 or consent of instructor.
Description: The biochemistry of fundamental processes in normal and disease states of eukaryotic cells. Explores the cell and molecular, and biochemical mechanisms of intracellular protein trafficking, cytoskeleton, cell adhesion, mitosis, cell cycle, cytokinesis, cellular stress responses, and apoptosis and in a variety of diseases including cancers, progeria (premature aging), Alzheimer's, Amyotrophic lateral sclerosis (ALS), high cholesterol, and diabetes. May not be used for Degree Credit with BIOC 5523. Previously offered as BIOC 4523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 3653 Survey of Biochemistry
Prerequisites: CHEM 3013 or CHEM 3053.
Description: An introduction to the chemistry of living systems. Chemical properties of the constituents of living organisms. Modes of formation, reactions and function of these compounds in microorganisms, plants and animals. Intended for non-majors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 3713 Biochemistry I
Prerequisites: CHEM 3053.
Description: Biochemistry of nucleic acids, proteins, amino acids, carbohydrates, and lipids with an emphasis on the kinetics, thermodynamics, catalytic and regulatory strategies of biochemical reactions and bioenergetics. Designed for biochemistry majors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 3723 Biochemistry and Molecular Biology Laboratory
Prerequisites: BIOC 3653 or BIOC 3713 or concurrent enrollment.
Description: Integrated lecture-laboratory course on fundamental theories and techniques in biochemical, forensic, and clinical research. Hands-on experience in mass spectrometry, DNA analysis, metabolic assays, kinetic assays, and protein purification. Previously offered as BIOC 3720.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 6 Contact: 7
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biochem & Molecular Biology

BIOC 3813 Biochemistry II
Prerequisites: BIOC 3713.
Description: Continuation of Biochemistry I with focus on metabolic pathways, cycles, and control mechanisms. This course will cover bioenergetics and metabolism of carbohydrates, lipids, amino acids and nucleotides. Designed for biochemistry majors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 3890 Advance Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental advanced honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated course(s). Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology
General Education and other Course Attributes: Honors Credit

BIOC 4013 Biotechnology Development and Implementation
Prerequisites: BIOC 3653 or BIOC 3713 or consent of instructor.
Description: An overview of emerging biotechnology in medicine and agriculture including gene therapy, immunotherapy, antibody-drug conjugates, and genome-editing technologies. Also includes an introduction to the global biotechnology industry, idea generation, intellectual property protection, finance, and regulation and policies within the industry. May not be used for degree credit with BIOC 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 4023 Molecular Biology and Stress Response of Plants
Prerequisites: BIOL 1113 or BIOC 3713 or PLNT 3554
Description: Topics cover the cutting-edge research areas including second messengers, phytohormones, signal transduction, microbiome, plant-microbe interactions, plant responses to climate change with focus on plant molecular biology and plant responses to biotic and abiotic stresses and their application in solving agricultural problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 4113 Molecular Biology
Prerequisites: BIOC 3653 or BIOC 3713 and BIOL 3023 or ANSI 3423 or PLNT 3554.
Description: Applications of biochemistry, molecular biology and genetic engineering with emphasis on protein structure and function, regulation of cell function, metabolism and disease processes. May not be used for Degree Credit with BIOC 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 4213 Disease and Metabolism
Prerequisites: BIOC 3653 or BIOC 3713 or concurrent enrollment
Description: Introduction to the causes, preventions and treatments for human diseases including obesity, diabetes, atherosclerosis, cancer and aging. Emphasis on the pathogenesis and the cross-talks between metabolic pathways at system level. May not be used for degree credit with BIOC 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 4313 Cancer Immunology and Immunotherapy
Prerequisites: BIOC 3713 or BIOC 3653 or consent of instructor
Description: Interaction between cancers and the immune system and current immune based biotechnology tools for treatments. Basic immunology and cancer biology, interactions between the immune system and cancers and current immunological therapies in cancers. Functioning of the immune system, genesis and development of cancers, and links between these two systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 4413 Plant and Soil Microbiomes Can Help Feed the World
Prerequisites: (BIOC 3653 or BIOC 3713) and BIOL 3023 or consent of instructor
Description: Introduction and profiling of plant and soil microbiomes; identifying microbes with agronomic traits that improve crop productivity and support food production; nutrient cycling; and bioremediation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 4723 Introduction to Bioinformatics
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and MATH 1513.
Description: Providing an introduction to programming for those intending to work with large biological datasets. This course covers the basics of Shell programming, scripting languages and examples of using software and packages. May not be used for Degree Credit with BIOC 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 4883 Senior Seminar in Biochemistry
Prerequisites: BIOC 3813 or concurrent enrollment or consent of instructor and senior standing.
Description: A senior capstone course for the development of scientific verbal and written communications and assessment of cumulative abilities. Focus is on problem solving, group discussion, primary literature review, oral presentation, and writing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 4990 Undergraduate Research
Description: Training in independent work, study of relevant literature and experimental investigation of an assigned problem. Offered for variable credit, 1-6 credit hours, maximum of 10 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Biochem & Molecular Biology

BIOC 5000 Research
Description: For MS thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biochem & Molecular Biology

BIOC 5002 Research Compliance and Biochemistry Graduate Colloquium
Prerequisites: Graduate standing.
Description: Introduction to graduate research. Policies for laboratory safety, research compliance, and ethical conduct of scientific research are presented.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5013 Biotechnology Development and Implementation
Prerequisites: (BIOC 3653 or BIOC 3713) and BIOL 3023 or consent of instructor.
Description: An overview of emerging biotechnology in medicine and agriculture including gene therapy, immunotherapy, antibody-drug conjugates, and genome-editing technologies. Also includes an introduction to the global biotechnology industry, idea generation, intellectual property protection, finance, and regulation and policies within this industry. May not be used for degree credit with BIOC 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5102 Molecular Genetics
Prerequisites: BIOC 3653 or MICR 3033 and one course in genetics or consent of instructor.
Description: An introduction to molecular genetics on the graduate level. Same course as GENE 5102.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5112 Articulation of Research Logic
Prerequisites: BIOC 5753 or equivalent or permission of instructor.
Description: Techniques for effective communication of scientific reasoning, logic, and critical thinking. Explanation of rationale, hypotheses, and experimental design. Public presentations as logical arguments. The course focuses on biomolecular systems.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5113 Molecular Biology
Prerequisites: BIOC 3653 or BIOC 3713 and BIOL 3023 or ANSI 3423 or PLNT 3554.
Description: Applications of biochemistry, molecular biology and genetic engineering with emphasis on protein structure and function, regulation of cell function, metabolism and disease processes. May not be used for degree credit with BIOC 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5120 Biochemistry and Molecular Biology Graduate Research Colloquium
Prerequisites: Graduate standing.
Description: Students will provide presentations to demonstrate their mastery of research literature, new research results, explanations for research roadblocks, and their ability to synthesize new knowledge and draw conclusions. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5213 Disease and Metabolism
Prerequisites: Graduate standing.
Description: Introduction to the causes, preventions and treatments for human diseases including obesity, diabetes, atherosclerosis, cancer and aging. Emphasis on the pathogenesis and the cross-talks between metabolic pathways at system level. May not be used for degree credit with BIOC 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5313 Cancer Immunology and Immunotherapy
Prerequisites: BIOC 3713 or BIOC 3653 or consent of instructor
Description: Interaction between cancers and the immune system and current immune based biotechnology tools for treatments. Basic immunology and cancer biology, interactions between the immune system and cancers and current immunological therapies in cancers. Functioning of the immune system, genesis and development of cancers, and links between these two systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5523 Biochemistry of the Cell
Prerequisites: BIOC 3653 or BIOC 3713 and MICR 3033 and BIOL 3023 or ANSI 3423 or PLNT 3554 or consent of instructor.
Description: The biochemistry of fundamental processes in normal and disease states of eukaryotic cells. Primary literature based experimental approaches to the mechanisms of intracellular protein trafficking, cytoskeleton, cell adhesion, mitosis, cell cycle, cytokinesis, and apoptosis. May not be used for degree credit with BIOC 4523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5553 Agricultural Biochemistry
Prerequisites: CHEM 3153 or equivalent.
Description: Organism function at the biochemical level and how this relates to the more complex biological systems of plants and animals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5723 Introduction to Bioinformatics
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and MATH 1513.
Description: Providing an introduction to programming for those intending to work with large biological datasets. This course covers the basics of Shell programming, scripting languages and examples of using software and packages. May not be used for degree credit with BIOC 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5753 Biochemical Principles
Prerequisites: CHEM 3153 or equivalent.
Description: Chemistry of cellular constituents; introduction to the chemical processes in living systems. The first in a series of courses for graduate students in biochemistry and related fields.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5824 Biochemical Laboratory Methods
Prerequisites: BIOC 4113 or BIOC 5753.
Description: Lecture and laboratory course in basic biochemistry and molecular biology methods for separation and analysis of biological materials, including chromatography, electrophoresis, centrifugation, use of radioisotopes, molecular cloning and DNA sequencing.
Credit hours: 4
Contact hours: Lab: 8 Contact: 8
Levels: Graduate
Schedule types: Lab
Department/School: Biochem & Molecular Biology

BIOC 5853 Molecular and Integrative Metabolism
Prerequisites: BIOC 5753 or BIOC 4113.
Description: Reaction sequences and cycles in the enzymatic transformations of fats, proteins and carbohydrates; energy transfer, biosynthesis and integration in the metabolic pathways.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 5930 Advanced Biochemical Techniques
Prerequisites: BIOC 5753, BIOC 5824 or concurrent registration, and consent of instructor.
Description: Lecture and laboratory course in advanced research techniques, designed to supplement BIOC 5824. In subsequent semesters, individual research problems pursued in laboratories of department faculty for six weeks and one credit hour each. Offered for variable credit, 1-4 credit hours, maximum of 10 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Biochem & Molecular Biology

BIOC 6000 Research
Description: For PhD dissertation. Offered for variable credit, 1-15 credit hours, maximum of 60 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Biochem & Molecular Biology

BIOC 6002 Mass Spectrometry & Functional Proteomics
Prerequisites: BIOC 3713 or BIOC 4213 or BIOL 3023 or BIOL 4073 or CHEM 4123 or CHEM 5073; or instructor approval.
Description: Applications of chromatography and mass spectrometry. Explore how proteomics reveals changes in protein levels, interactions, localization, and modifications. Hands-on experience with advanced technologies and data analysis tools. Apply proteomic approaches research to solve complex biological problems and drive new discoveries.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 6110 Seminar
Description: Maximum 2 for PhD or 1 for MS candidates. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Graduate
Schedule types: Independent Study
Department/School: Biochem & Molecular Biology

BIOC 6663 Molecular Plant-Microbe Interactions
Prerequisites: PLP 3343 and BIOC 3653.
Description: Focused on the biochemistry, molecular biology and molecular genetics of pathogenic and symbiotic interactions between microbes and plants to explain the mechanisms by which microbe's infection and activation of plant immunity and symbiosis signaling pathways. Same course as PLP 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 6723 Signal Transduction
Description: Classical signal transduction mechanisms including MAP kinase signaling cascades, Protein kinase A, Protein kinase C pathways, JAK/STAT pathways, calcium signaling, the cell cycle, programmed cell death, and cell signaling in cancer. Strong focus on the primary literature and experimental strategies used in modern cell biology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 6733 Functional Genomics
Prerequisites: BIOC 3653 or BIOC 3713 and BIOC 3813 or BIOC 5753 or consent of instructor.
Description: Principles and techniques of genomics technologies and their applications in basic science and applied animal and plant research. Genome sequencing, variation detection, transcriptomics, proteomics, metabolomics, metagenomics, systems biology, forward and reverse genetics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 6740 Physical Biochemistry
Prerequisites: One semester each of biochemistry, calculus and physical chemistry.
Description: Two independent modules dealing with applications of physical chemistry and math to biological phenomena: 1) numerical analyses and selected spectroscopic methods, and 2) thermodynamics and transport properties. Modules may be taken together as two credits or individually for one credit. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Graduate
Schedule types: Independent Study
Department/School: Biochem & Molecular Biology

BIOC 6753 Epigenetics
Prerequisites: BIOC 5102 or BIOC 5753 or consent of instructor.
Description: Principles underlying heritable changes in gene expression caused by mechanisms other than changes in the DNA sequence. The roles of chromatin structure, DNA and histone modification, and small RNAs in plant and animal development and disease. Applications of epigenetic-based therapeutics and the use of RNA interference in plants and animals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 6763 Nucleic Acids and Protein Synthesis
Prerequisites: BIOC 4113 or BIOC 5753.
Description: Structure and biological function of nucleic acid containing structures with emphasis on recombinant DNA methodologies, information content, nucleic acid-protein interaction, regulation and rearrangement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 6773 Protein Structure and Enzyme Function
Prerequisites: BIOC 4113 or BIOC 5753.
Description: Theory of and methods for studying the physical and chemical basis of protein structure and function; and the enzyme catalysis, including kinetics, chemical modification and model studies. Examples from current literature.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 6783 Biomembranes and Bioenergetics
Prerequisites: BIOC 5853 or consent of instructor.
Description: Components, organization and biosynthesis of plasma, mitochondrial and photosynthetic membranes, emphasizing structure-function relationships. Mechanism of metabolites, protons and electrons transport. Energy conservation in bioenergetic apparatus such as mitochondria, chloroplasts or bacterial chromatophores.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 6793 Plant Biochemistry
Prerequisites: BIOC 4113 or BIOC 5753.
Description: Biochemistry of processes and structures of special importance to plants, such as photosynthesis, cell walls, nitrogen fixation, secondary metabolites and storage proteins. Previously offered as BIOC 6792.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

BIOC 6820 Selected Topics in Biochemistry
Prerequisites: BIOC 5853.
Description: Recent developments in biochemistry. Subject matter varies from semester to semester; students should inquire at the department office before enrolling. Same course as ITOX 6820. Offered for variable credit, 1-3 credit hours, maximum of 15 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Biochem & Molecular Biology

BIOC 6823 Quantitative Methods in Omics
Prerequisites: BIOC 1114 and MATH 1513.
Description: Statistical, computational and algorithmic components applied in genomics technologies including theories in quantitative genetics in QTL mapping and Genome-wide Association studies (GWAS), differential analysis based on read-count information and multi-dimensional module/network analysis, graph theories, hidden Markov Models and deep learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biochem & Molecular Biology

Biology (BIOL)

BIOL 1111 Introductory Biology Laboratory (LN)
Prerequisites: BIOL 1113 or concurrent.
Description: Provides students with authentic research experiences in which they design, conduct, and report on the results of extended investigations over topics introduced in BIOL 1113. Recommended for science majors.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Biology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

BIOL 1113 Introductory Biology (N)
Description: Introduction to the integration between structure and function among all levels of biological organization. Application of principles of evolution, genetics, physiology and ecology to understanding the integrated and interdependent nature of living systems through discussions emphasizing the process of science. Discussions include current issues, local research, observations, and investigations. Recommended for science majors. Concurrent enrollment in BIOL 1111 Introductory Biology Laboratory is highly recommended. May not be used for degree credit with BIOL 1114.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Natural Science Reasoning
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

BIOL 1114 Introductory Biology (LN)
Description: Introduction to the integration between structure and function among all levels of biological organization. Application of principles of evolution, genetics, physiology and ecology to understanding the integrated and interdependent nature of living systems through discussions emphasizing the process of science. Current issues and local research and observation and investigation in both lecture and lab. Recommended for non-science and science majors. Course previously offered as BISC 1114.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

BIOL 1604 Animal Biology
Prerequisites: Completion of BIOL 1114 or BIOL 1113 and (BIOL 1111 or concurrent enrollment), or acceptable AP credit.
Description: Morphology, physiology, ecology, life histories and importance of representatives of major groups to humans. Evolution of systems and mechanisms which have allowed animals to survive and adapt to diverse habitats. Previously offered as ZOOL 1604.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 2003 Biology for the Informed Citizen (LN)
Description: Learn how to find reliable answers to biological questions and arrive at informed decisions in everyday life. The course uses current issues (e.g., cancer, pollution) to convey fundamental biological concepts through lectures, discussion, and independent research. Students will complete a research project for a hands-on experience of the scientific process (study design to presentation). Not an alternative to Introductory Biology.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

BIOL 2890 Honors Experience in Biology
Prerequisites: Honors Program participation and concurrent enrollment in a designated BIOL course.
Description: A supplemental Honors experience in Biology to partner concurrently with designated BIOL course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Honors Credit

BIOL 3023 General Genetics
Prerequisites: "C" or better in CHEM 3013 or CHEM 3053 or MICR 2123 or MICR 3033 or PBIO 2403.
Description: Inheritance in plants, animals, and microorganisms; molecular and classical aspects. Previously offered as BIOL 3024 and BISC 3024.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 3034 General Ecology
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) or equivalent and (PBIO 1404 or BIOL 1604 or equivalent) and MATH 1513 or higher.
Description: An overview of the study of organisms interacting with each other and their environment at individual, population, community, and ecosystem levels of organization. Includes human interaction with ecological systems.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 3053 Freshwater: Concepts, Threats and Management (N)
Description: Freshwater is a critical, non-substitutable resource. Do we have enough? How are we going to manage it? This course will introduce non-biology majors to the concepts, threats, and policy relevant to freshwaters using information published in the popular science press. Issues directly relevant to Oklahoma, and the U.S. will be discussed. Debates modeled using the legal system of policy formulation will promote critical thought and communication skills in an exciting real-world milieu. ZOOL and PHSL majors may count as elective hours only. Previously offered as ZOOL 3023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Natural Science Reasoning

BIOL 3104 Invertebrate Zoology
Prerequisites: BIOL 1604.
Description: Morphology, physiology, reproduction and ecology of major invertebrate groups. Previously offered as ZOOL 3104.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 3113 Human Evolution (N)
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) strongly recommended.
Description: Overview of how evolution shapes human biology. Topics include evolutionary mechanisms, human genetic variation and health, primate diversity, the fossil record, and the origins, dispersal, and behavior of anatomically modern humans. ZOOL and PHSL majors may count as elective hours only. Previously offered as ZOOL 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Natural Science Reasoning

BIOL 3114 Vertebrate Morphology
Prerequisites: BIOL 1604.
Description: Comparative morphology of representative vertebrates with emphasis on phylogeny and ontogeny and consideration of histology and function. Previously offered as ZOOL 3114.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 3123 Human Heredity (N)
Description: The impact of genetics on human endeavor. Not recommended for students with prior credit in BIOL 3023. BIO, PHSL and ZOOL majors may count as elective hours only. Previously offered as ZOOL 3123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Natural Science Reasoning

BIOL 3153 Animal Behavior
Prerequisites: Junior standing.
Description: Survey of theory and application in basic and applied animal behavior. Interdisciplinary analysis of animal behavior in the field, captive settings and laboratories. Previously offered as ZOOL 3153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 3163 Environmental Biology
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and (CHEM 1215 or CHEM 1314).
Description: Overview of how organisms are influenced by the environment in which they live and how anthropogenic activities impact their environment. Topics include impacts of disturbing energy and material cycles, toxicological disease, and infectious disease. Previously offered as ZOOL 3163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 3201 Physiology Lab
Prerequisites: Minimum grade of "C" in BIOL 1114 or (BIOL 1113 and BIOL 1111) and (CHEM 1215 or CHEM 1314 or CHEM 1414) and BIOL 3203 or concurrent.
Description: Investigations of physiological processes through laboratory experiments relating to the principles covered in BIOL 3203. Provides hands-on experience with laboratory methods, experimental design, data collection and analysis, peer-review, and writing lab reports in the context of physiological research.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Biology

BIOL 3203 Physiology
Prerequisites: Minimum grade of "C" in BIOL 1114 or (BIOL 1113 and BIOL 1111) and (CHEM 1215 or CHEM 1314 or CHEM 1414).
Description: Introduction to basic principles of physiology: the biochemical and cellular processes underlying physiological function, the structure and function of organs and organ systems, and how these levels coordinate to maintain physiological homeostasis. Discussion of pathophysiologies and application of the scientific method to evaluate physiological studies. Concurrent enrollment in BIOL 3201 Physiology is highly recommended. Same course as ZOOL 3034 and ZOOL 3204. May not be used for degree credit with BIOL 3204.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 3204 Physiology
Prerequisites: "C" or better in both BIOL 1114 or (BIOL 1113 and BIOL 1111) and (CHEM 1215 or CHEM 1314 or CHEM 1414).
Description: Anatomy and function of the human body. Human and domestic animal physiology considered in laboratories. Previously offered as ZOOL 3204. May not be used for degree credit with BIOL 3203.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 3214 Human Anatomy
Prerequisites: "C" or better in either BIOL 1604 or BIOL 3204 or (BIOL 3203 and BIOL 3201).
Description: Gross anatomy of the human body and its systems with a minor emphasis on histology. Laboratory based on human models and comparisons with dissections of nonhuman mammals. Previously offered as ZOOL 3214.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 3233 Human Reproduction
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) or consent of instructor.
Description: Overview of human reproduction, including conception, pregnancy, childbirth, sexual maturation, and parental investment in offspring. Draws from multiple fields such as genetics, anatomy and physiology, developmental biology and evolutionary theory. Previously offered as ZOOL 3233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 3513 Principles of Conservation Biology
Prerequisites: Sophomore standing and BIOL 1604 or PBIO 1404.
Description: A scientific foundation of conservation biology through the study of the importance of conservation in society, the role of conservation policy, protected areas, and planning, and the future of conservation biology. Topics covered include Ecology, Evolution, and Genetics. Previously offered as ZOOL 3513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 3604 Biological Principles for Teachers
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and BIOL 3204 or (BIOL 3203 and BIOL 3201) and CHEM 1314.
Description: Capstone course in biology for potential science teachers. Review of biological phenomena and principles as related to the curriculum. Course previously offered as BISC 3604.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 3700 Readings and Special Studies in Biology
Prerequisites: BIOL 1604 and consent of instructor.
Description: Discussion of selected readings. Previously offered as ZOOL 3700. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biology

BIOL 3890 Advanced Honors Experience in Biology
Prerequisites: Honors Program participation and concurrent enrollment in a designated BIOL course.
Description: A supplemental Honors experience in Biology to partner concurrently with designated upper-division BIOL course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Honors Credit

BIOL 3933 Research Methods
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and (MATH 1613 or higher) and (STAT 2013 or STAT 4013).
Description: Students perform independent inquiries and learn to use skills from science to solve research problems. Students will design experiments, collect and analyze data, formulate hypotheses, justify conclusions, create models, read and evaluate the research literature, and write and present research reports.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4024 Histology
Prerequisites: BIOL 3114 or BIOL 3204 or (BIOL 3203 and BIOL 3201) or BIOL 3214.
Description: The study of cellular composition and functional components of tissues. With an emphasis in vertebrates, the course is a survey of the microanatomy and function of tissues such as epithelial, connective, muscular, and nervous. May not be used for degree credit with BIOL 5024.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4073 Principles of Neuroscience
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and either (CHEM 1215, CHEM 1314, or CHEM 1414).
Description: Neuroscience is an interdisciplinary field focused on understanding the structure and function of the brain, spinal cord, and peripheral nervous system. Course examines theories and principles related to the neural mechanisms controlling physiological processes and behavior. Topics covered include cellular neurobiology, neuronal signaling, neural development and plasticity, comparative neuroanatomy, and neurobiology of complex brain functions. Previous coursework in physiology recommended. Same course as PSYC 4073. May not be used for degree credit with BIOL 5073 or PSYC 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4104 General Parasitology
Prerequisites: BIOL 1604.
Description: Fundamentals of parasitism with emphasis on: life cycles, disease conditions, epidemiology, diagnosis, treatment, historical significance, terminology, taxonomy, and parasitological techniques. Previously offered as ZOOL 4104. May not be used for degree credit with BIOL 5104.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4113 Conservation Genetics
Prerequisites: (BIOL 3023 or equivalent) and MATH 1513.
Description: Principles of population genetics as they pertain to issues in conservation biology. Evolutionary relationships, hybridization, natural selection, factors affecting small populations, gene flow, captive populations, and metapopulations. No credit for students with credit in BIOL 5113. Previously offered as ZOOL 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4133 Evolution
Prerequisites: BIOL 3023.
Description: Development of the evolutionary concept; speciation evolutionary mechanisms and phylogenetic concepts. May not be used for degree credit with BIOL 5033. Previously offered as ZOOL 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4134 Embryology
Prerequisites: BIOL 1604 and CHEM 1515.
Description: Biochemical basis of development with emphasis on gene regulation. Comparative development of sea urchin, frog, chick and pig. Experiments using frog and mouse, including the molecular level. Previously offered as ZOOL 4134. May not be used for degree credit with BIOL 5134.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4174 Mammalogy
Prerequisites: "C" or better in BIOL 1604 and (BIOL 3034 or NREM 3013).
Description: Taxonomy, identification, evolution, zoogeography, life history traits, and techniques of study of wild mammals. Weekend field trips required. May not be used for degree credit with BIOL 5174. Previously offered as ZOOL 4174.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4184 Herpetology
Prerequisites: BIOL 1604.
Description: The biology of amphibians and reptiles with an emphasis on evolutionary relationships and comparative morphology, physiology, ecology, and natural history; laboratory emphasis on Oklahoma species. Offered spring semester of even-numbered years. Weekend field trips required. May not be used for degree credit with BIOL 5184.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4215 Mammalian Physiology
Prerequisites: Minimum grade of "C" in both BIOL 3204 or (BIOL 3203 and BIOL 3201) and (CHEM 3013 or CHEM 3053).
Description: Descriptive and functional analysis of the mammalian nervous, cardiovascular, musculoskeletal, respiratory, renal, endocrine, and digestive organ systems. For majors in human and animal sciences, particularly pre-medical, pre-dental, and pre-veterinary tracks. May not be used for degree credit with BIOL 5215. Previously offered as ZOOL 4215.
Credit hours: 5
Contact hours: Lecture: 5 Contact: 5
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4223 Mammalian Physiology Capstone Laboratory
Prerequisites: Minimum grade of "C" in BIOL 4215 or ZOOL 4215.
Description: Laboratory experiments that illustrate functions of organs, organ systems or mechanisms of whole body physiological control. A unique Capstone Experience for Physiology majors. Restricted to declared Physiology majors in the Department of Biology. Previously offered as ZOOL 4223.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4253 Pharmacology
Prerequisites: Minimum grade of "C" in either BIOL 3204 or (BIOL 3203 and BIOL 3201) or BIOL 4215; Biochemistry strongly suggested.
Description: Major drug classes based on their predominant use or principal activity in the body; basis for drug action; and modification of drugs and their action by physiological processes. May not be used for degree credit with BIOL 5253. Previously offered as ZOOL 4243 and BIOL 4243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4273 Environmental Physiology
Prerequisites: BIOL 3204 or (BIOL 3203 and BIOL 3201) or BIOL 4215.
Description: The study of animal adaptation and responses to natural environments. Topics include marine, shoreline, freshwater, and terrestrial habitats as well as anthropogenic problems specific to these habitats. May not be used for degree credit with BIOL 5273. Previously offered as ZOOL 4273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4283 Endocrinology
Prerequisites: Minimum grade of "C" in (BIOL 3204 or (BIOL 3203 and BIOL 3201) or BIOL 4215) and credit in (CHEM 3013 or CHEM 3053) or consent of instructor.
Description: Examination of the hormonal control and regulation of physiological processes in vertebrates. Function of the hypothalamus, pituitary, adrenal, thyroid, pancreas, ovary and testes. May not be used for degree credit with BIOL 5283. Previously offered as ZOOL 4283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4293 Behavioral Neuroendocrinology
Prerequisites: BIOL 3204 or (BIOL 3203 and BIOL 3201) or BIOL 4215.
Description: Examination of the influences of nervous and endocrine systems on behavior, and vice-versa, in vertebrates, including humans. Historical roots and current techniques relating to topics, including male and female reproductive behavior patterns, sex differences in behavior and neuroendocrine causation. May not be used for degree credit with BIOL 5293. Previously offered as ZOOL 4293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4303 Organismal Ecotoxicology
Prerequisites: Junior standing and BIOL 1114 or (BIOL 1113 and BIOL 1111) or equivalent and (CHEM 1215 or CHEM 1314).
Description: Comparative study of the major groups of environmental contaminants (e.g. heavy metals, PCB's, insecticides) and an introduction to the basic theories, principles and techniques associated with the study of contaminant fate and effects on organisms. No credit for students with credit in BIOL 5303. Same course as BIOL 5303 and ITOX 5303. Previously offered as ZOOL 4303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4313 Animal Communication
Prerequisites: Junior standing.
Description: Mechanisms, function and evolution of animal communication systems. Emphasis on the function of sensory systems, signal production mechanisms, theories of signal design and optimal signaling strategies, and current research on signaling behavior and its evolution in wild animals. A course in animal behavior or evolution recommended. May not be used for degree credit with BIOL 5313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4333 Disease Ecology
Prerequisites: BIOL 1113 or BIOL 1114 and junior standing.
Description: Understanding the ecology and evolution of pathogens and host-parasite relationships. This course will cover topics from the evolution of virulence and antibiotic resistance to globalization, emerging infectious diseases, and the factors driving increased pandemic risk. May not be used for degree credit with BIOL 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4363 Principles of Toxicology
Prerequisites: BIOL 3204 or (BIOL 3203 and BIOL 3201) and (CHEM 1215 or CHEM 1314).
Description: Basic concepts in toxicology such as chemical partitioning, dose response, toxicokinetics, toxicodynamics, and bioavailability. It will focus on the molecular and cellular mechanisms of toxicity of a few representative natural and man-made compounds. Case studies used to understand real-life scenarios. May not be used for degree credit with BIOL 5363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

BIOL 4413 Biology of Fishes
Prerequisites: BIOL 1604.
Description: Ecology and evolution of fishes with particular emphasis on physiology, morphology, behavior, and taxonomy; laboratory emphasis on Oklahoma species. Weekend field trips required. May not be used for degree credit with BIOL 4413.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology
Additional Fees: BIOL 4413 Field Trip fee of $48 applies.

BIOL 4434 Limnology
Prerequisites: BIOL 3034 or (NREM 3012 and NREM 3013).
Description: This course provides an overview of the physical, chemical, and biological characteristics of inland habitats including lakes, reservoirs, streams, and wetlands. Field trips required. May not be used for degree credit with BIOL 5434. Previously offered as ZOOL 4434.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology
Additional Fees: BIOL 4434 Field Trip fee of $48 applies.

BIOL 4464 Ornithology
Prerequisites: BIOL 1604.
Description: Classification, evolution, distribution, identification, life histories, and morphological, ecological, and behavioral adaptations of birds. Two weekend field trips required. Same course as NREM 4464. May not be used for degree credit with BIOL 5464 or NREM 5464. Previously offered as ZOOL 4464.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4484 Animal Locomotion
Prerequisites: BIOL 1604.
Description: How do animals move? How does this motion change based on environment? How has such motion evolved across groups? This course will explore the relationship of body form to locomotion. We will focus on all types of animals, which represent a broad diversity of types of locomotion (e.g. flying, swimming, jumping), environments (e.g. air, land, water), and scales of body size (i.e. from single cells to whales). A laboratory will serve to introduce students to the methods and technology used in studying locomotion. May not be used for degree credit with BIOL 5484.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4524 Biological Laboratory Instrumentation
Prerequisites: CHEM 1515 and PBIO 1404 or MICR 2123 or BIOL 1604 or equivalents or consent of instructor.
Description: Lecture and laboratory course in biological instrumentation use, theory, experimental design, maintenance, and troubleshooting. Topics include liquid handling systems, pH/ISE meters, electrophoresis, spectrophotometers, centrifuges, chromatography, thermocylers, and DNA sequencers. No credit for students with credit in BIOL 5524, MICR 5524, PBIO 5524. Same course as PBIO 4524 and MICR 4524.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 4700 Undergraduate Research Problems
Prerequisites: Consent of instructor.
Description: Participation in faculty research or execution of a problem formulated by the student. Project will include the communication of research results in written and/or oral form. Previously offered as ZOOL 4700. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Biology

BIOL 4710 Internships in Biology
Prerequisites: Consent of instructor.
Description: Student participation in a research project during an internship in a Life Sciences related professional work setting. Graded on a pass-fail basis. Previously offered as ZOOL 4710. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Biology

BIOL 4730 Collaborative Research in Biology
Prerequisites: BIOL 1604.
Description: Small teams of students work closely with faculty to design, develop, implement, and present authentic research projects. Topics of research will vary each semester based on the research interests of faculty leading the course.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Biology

BIOL 4750 Honors Study in Biology
Prerequisites: Honors Program participation.
Description: Individual study in the development of biological concepts. Extensive reading, literature search and special experimentation. An individual problems course for the gifted student. Previously offered as ZOOL 4750. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Biology
General Education and other Course Attributes: Honors Credit

BIOL 5000 Research for Master's Thesis
Description: Independent research for the MS Thesis under the supervision of graduate faculty member. Previously offered as ZOOL 5000. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biology

BIOL 5003 Graduate Orientation and Academic Development
Prerequisites: Admission to Biology graduate program or instructor approval.
Description: Prepare first year Biology graduate students for success. We address departmental expectations and standards by providing: an introduction to departmental expertise and capabilities, exposure to available tools and resources, a forum for research conceptualization and formulation, instruction on finding and securing funding, guidance on how to convert questions into grant proposals, and a milieu for preparation, submission and peer review of external grant/fellowships. Previously offered as ZOOL 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5010 Graduate Seminar
Description: Discussion of selected topics. Previously offered as ZOOL 5010. Offered for variable credit, 1-3 credit hours, maximum of 10 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Biology

BIOL 5011 Current, Historical, and Integrative Principles in Biology
Prerequisites: Admission to Biology graduate program or instructor approval.
Description: This course will furnish fundamental concepts in ecology, evolution, and environmental stress for first-year graduate students in Biology (and related departments). More importantly, this course is organized as modules that bring together various elements from the three broadly defined, and fundamentally related disciplines (i.e., ecology, evolution, and environmental stress), that our department views as our core strengths. Previously offered as ZOOL 5011.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5020 Special Problems
Prerequisites: Graduate standing and consent of instructor.
Description: Discussions of selected readings and topics. Previously offered as ZOOL 5020. Offered for variable credit, 1-4 credit hours, maximum of 10 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Biology

BIOL 5024 Histology
Prerequisites: Consent of Instructor.
Description: The study of cellular composition and functional components of tissues. With an emphasis in vertebrates, the course is a survey of the microanatomy and function of tissues such as epithelial, connective, muscular, and nervous. May not be used for degree credit with BIOL 4024.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5030 Teaching Biology
Prerequisites: Consent of instructor.
Description: Supervised teaching in the department. Attendance at seminar on problems involved in teaching Biology in college. Previously offered as ZOOL 5030. Offered for variable credit, 1-3 credit hours, maximum of 4 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate, Undergraduate
Schedule types: Independent Study
Department/School: Biology

BIOL 5033 Evolution
Description: Development of the evolutionary concept; speciation evolutionary mechanisms and phylogenetic concepts. May not be used for degree credit with BIOL 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5073 Principles of Neuroscience
Description: This course examines foundational theories and principles related to the neural mechanisms controlling physiological processes and behavior. Topics covered include cellular neurobiology, neuronal signaling, neural development and plasticity, comparative neuroanatomy, and neurobiology of complex brain functions such as sensory processing, arousal, emotions, learning, and memory. Previous coursework in physiology recommended. Same course as PSYC 5073 and BIOM 5983. May not be used for degree credit with BIOL 4073 or PSYC 4073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5100 Current Topics in Biology for Teachers
Prerequisites: Approval of instructor.
Description: Acquaints the primary or secondary teacher with recent advances in biology. May include lecture, laboratory or field work. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5104 General Parasitology
Prerequisites: BIOL 1604.
Description: Fundamentals of parasitism with emphasis on: life cycles, disease conditions, epidemiology, diagnosis, treatment, historical significance, terminology, taxonomy, and parasitological techniques. May not be used for degree credit with BIOL 4104.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5113 Conservation Genetics
Prerequisites: Course in genetics strongly recommended.
Description: Principles of population genetics as they pertain to issues in conservation biology. Evolutionary relationships, hybridization, natural selection, factors affecting small populations, gene flow, captive populations, and META populations. No credit for students with credit in BIOL 4113. Previously offered as ZOOL 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5123 Behavioral Ecology
Prerequisites: Course in ecology strongly recommended.
Description: Analysis and description of the behavior of animals in their natural environment, especially in terms of natural selection and adaptation. A synthesis of ethology, population genetics, sociobiology, and evolutionary theory. Largely descriptive and generalized with limited emphasis on mathematical theory. Previously offered as ZOOL 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5133 Evolutionary Ecology
Description: This course is intended to inform students about the traditional breadth of evolutionary ecology, and its impacts on contemporary ecological and evolutionary theories. Study will include both broad historical precedent and the far-reaching importance of current research in evolutionary ecology. This course will develop skills in written and oral communication and critical/synthetic thought. Previously offered as ZOOL 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5134 Embryology
Prerequisites: BIOL 1604 and CHEM 1515.
Description: Biochemical basis of development with emphasis on gene regulation. Comparative development of sea urchin, frog, chick and pig. Experiments using frog and mouse, including the molecular level. May not be used for degree credit with BIOL 4134.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5174 Mammalogy
Prerequisites: College level ecology or Natural History course.
Description: Taxonomy, identification, evolution, zoogeography, life history traits, and techniques of study of wild mammals. Weekend field trips required. May not be used for degree credit with BIOL 4174.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5184 Advanced Herpetology
Description: The biology of amphibians and reptiles with an emphasis on evolutionary relationships and comparative morphology, physiology, ecology, and natural history; laboratory emphasis on Oklahoma species. Offered spring semester of even-numbered years. Weekend field trips required. May not be used for degree credit with BIOL 4184.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5215 Mammalian Physiology
Description: Descriptive and functional analysis of the mammalian nervous, cardiovascular, musculoskeletal, respiratory, renal, endocrine and digestive organ systems. For majors in human and animal sciences, particular pre-medical, pre-dental, and pre-veterinary tracks. Upper-division physiology course required. May not be used for degree credit with BIOL 4215. Previously offered as ZOOL 4215.
Credit hours: 5
Contact hours: Lecture: 5 Contact: 5
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5243 Ecological Immunology
Description: The causes and consequences of variation in immunity studied within the context of evolution and ecology. A combination of lectures and student-led presentations intended for graduate students and advanced undergraduates. Previously offered as ZOOL 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5253 Pharmacology
Description: Major drug classes based on their predominant use or principal activity in the body; basis for drug action; and modification of drugs and their action by physiological processes. Upper-division Physiology and Organic Chemistry required. May not be used for degree credit with BIOL 4243 or BIOL 4253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5273 Environmental Physiology
Prerequisites: BIOL 3204 or BIOL 4215 or equivalent.
Description: The study of animal adaptation and responses to natural freshwater, and terrestrial habitats as well as anthropogenic problems specific to these habitats. No credit for students with credit in BIOL 4273. Previously offered as ZOOL 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5283 Endocrinology
Prerequisites: A course in physiology and chemistry or consent of instructor.
Description: Examination of the hormonal control and regulation of physiological processes in vertebrates. Function of the hypothalamus, pituitary, adrenal, thyroid, pancreas, ovary and testes. No credit for students with credit in BIOL 4283. Previously offered as ZOOL 5283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5293 Behavioral Neuroendocrinology
Prerequisites: BIOL 3204 or BIOL 4215.
Description: Examination of the influences of nervous and endocrine systems on behavior and vice-versa, in vertebrates including humans. Historical roots and current techniques relating to topics, including male and female reproductive behavior patterns, sex differences in behavior and neuroendocrine causation. No credit for students with credit in BIOL 4293. Previously offered as ZOOL 5293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5303 Organismal Ecotoxicology
Description: Comparative study of the major groups of environmental contaminants (e.g. heavy metals, PCB's, insecticides) and an introduction to the basic theories, principles and techniques associated with the study of contaminant fate and effects on organisms. No credit for students with credit in BIOL 4303. Same course as ITOX 5303. Previously offered as ZOOL 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5313 Animal Communication
Prerequisites: Graduate standing.
Description: Mechanisms, function and evolution of animal communication systems. Emphasis on the function of sensory systems, signal production mechanisms, theories of signal design and optimal signaling strategies, and current research on signaling behavior and its evolution in wild animals. A course in animal behavior or evolution recommended. May not be used for degree credit with BIOL 4313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5333 Disease Ecology
Description: Understanding the ecology and evolution of pathogens and host-parasite relationships. This course will cover topics from the evolution of virulence and antibiotic resistance to globalization, emerging infectious diseases, and the factors driving increased pandemic risk. A class in Introductory Biology recommended. May not be used for degree credit with BIOL 4333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5343 Population and Community Ecotoxicology
Prerequisites: Course in ecology strongly recommended.
Description: Examines the exposure of animals to environmental contaminants and resulting effects at the individual through community level. The dynamic nature of exposure to contaminants will be of particular interest in this course. For example, how do the natural history traits of a species either protect it from exposure, or enhance its potential for exposure to contaminants? Topics will range from the historical perspectives to ecotoxicology to study design and risk assessment. Same course as ITOX 5343. Previously offered as ZOOL 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5363 Principles of Toxicology
Prerequisites: Course in chemistry and physiology strongly recommended.
Description: Basic concepts in toxicology such as chemical partitioning, dose response, toxicokinetics, toxicodynamics, and bioavailability. It will focus on the molecular and cellular mechanisms of toxicity of a few representative natural and man-made compounds. Case studies used to understand real-life scenarios. No credit for students with credit in BIOL 4363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5403 Advanced Wetland Ecology
Prerequisites: A course in aquatic ecology or wetland management recommended.
Description: Principles and theory of wetland ecology with a focus on wetland processes, function, and services. Topics include wetland geomorphology, biogeochemistry and hydrology of wetlands, wetland functions and services, wetland development, wetland restoration, water issues, wetland policy, philosophy of wetland management, and educating society about wetlands. Same course as NREM 5403. Previously offered as ZOOL 5403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5413 Biology of Fishes
Description: Ecology and evolution of fishes with particular emphasis on physiology, morphology, behavior, and taxonomy; laboratory emphasis on Oklahoma species. Weekend field trips required. Previously offered as ZOOL 4413. May not be used for degree credit with BIOL 4413.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5423 Techniques in Environmental Toxicology
Prerequisites: Organic chemistry or instructor consent.
Description: Practical understanding of modern techniques used to quantify exposure and effects of environmental toxicants. Laboratory topics include gas chromatography, HPLC, atomic absorption spectroscopy, immunoassay, and toxicity testing. Same course as ITOX 5423. Previously offered as ZOOL 5423.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5434 Limnology
Description: This course provides an overview of the physical, chemical, and biological characteristics of inland habitats including lakes, reservoirs, streams, and wetlands. Field trips required. May not be used for degree credit with BIOL 4434.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5464 Ornithology
Description: Classification, evolution, distribution, identification, life histories, and morphological, ecological, and behavioral adaptations of birds. Two weekend field trips required. May not be used for degree credit with BIOL 4464, NREM 4464. Previously offered as NREM 5564.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5484 Animal Locomotion
Description: How do animals move? How does this motion change based on environment? How has such motion evolved across groups? This course will explore the relationship of body form to locomotion. We will focus on all types of animals, which represent a broad diversity of types of locomotion (e.g. flying, swimming, jumping), environments (e.g. air, land, water), and scales of body size (i.e. from single cells to whales). A laboratory will serve to introduce students to the methods and technology used in studying locomotion. May not be used for degree credit with BIOL 4484.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5503 Spatial Ecology and Analysis
Prerequisites: Course in ecology strongly recommended.
Description: Theory, methods, and models for identifying and quantifying spatial patterns and processes, with a focus on implications for ecological relationships. Previously offered as ZOOL 5503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5523 Population Ecology
Prerequisites: BIOL 3034 and MATH 1513.
Description: Theory and principles of predicting and analyzing population abundance and dynamics. Life history theory, foraging theory, habitat selection, population genetics, and species interactions. Previously offered as ZOOL 5523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5524 Biological Laboratory Instrumentation
Prerequisites: CHEM 1515 and PBIO 1404 or MICR 2123 or BIOL 1604 or equivalents or consent of instructor.
Description: Lecture and laboratory course in biological instrumentation use, theory, experimental design, maintenance, and troubleshooting. Topics include liquid handling systems, pH/ISE meters, electrophoresis, spectrophotometers, centrifuges, chromatography, thermocylers, and DNA sequencers. May not be used for degree credit in BIOL 4524, MICR 4524, PBIO 4524. Same course as PBIO 5524 and MICR 5524.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

BIOL 5623 Ecological Data and Alternative Hypothesis
Prerequisites: Course in statistics strongly recommended.
Description: Emphasizes statistical analyses that start with a set of plausible alternative hypotheses and use likelihoods to quantify the relative support the hypotheses receive from empirical data. Instruction will be done with lectures, computer lab exercises, and in-class presentations. Previously offered as ZOOL 5623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5633 Ecological and Behavioral Modeling
Prerequisites: Course in ecology strongly recommended.
Description: This course will provide a general overview of modeling approaches for studying a variety of ecological and environmental problems. It will provide students with a toolbox of techniques, and discuss how they can be used to address questions and generate testable predictions. The course will emphasize modeling individual behavior and population dynamics. Previously offered as ZOOL 5633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 5643 Ecological Niche Modeling and Species Distributions
Prerequisites: Course in ecology strongly recommended.
Description: Ecological niche modeling theory and practice. Generation of niche models and distribution predictions to address questions on species' ecology, conservation, biogeography, and phylogeography. Familiarization with ESRI ArcGIS software, as well as environmental GIS data sources. Previously offered as ZOOL 5643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

BIOL 6000 Research for PhD Dissertation
Description: Independent research for the PhD dissertation under the supervision of a graduate faculty member. Previously offered as ZOOL 6000. Offered for variable credit, 1-15 credit hours, maximum of 60 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Biology

Biomedical Sciences (BIOM)

BIOM 5000 Research & Thesis
Prerequisites: Consent of major adviser.
Description: Research in biomedical sciences for MS degree. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 5003 Statistics for Medical Residents
Prerequisites: Employed as a medical resident or permission of instructor
Description: Survey of statistical methodology relevant to health care professionals. Basic understanding of statistics presented in recent medical literature. Hypothesis testing, ANOVA techniques, regression, categorical techniques. Same course as STAT 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5010 Special Topics in Biomedical Sciences
Description: Provides an overview of current issues in biomedical sciences. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5013 Medical Biostatistics
Prerequisites: Graduate standing.
Description: Fundamentals of biostatistics, including parametric and non-parametric statistical methods with applications to biomedical research, clinical epidemiology and clinical medicine.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5020 Biomedical Sciences Seminar
Prerequisites: Graduate standing.
Description: Literature and research problems in biomedical sciences. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Lecture: 1-15 Contact: 1-15
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5111 Practice and Perspectives in Anatomy Education
Prerequisites: Graduate standing in the biomedical sciences program and passed BIOM 5116.
Description: This course explores practical aspects of working as a professional anatomy educator, including critical assessment of common approaches and pedagogical theory.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5116 Clinical Anatomy
Prerequisites: Graduate standing in the biomedical sciences program.
Description: Presents gross structure of the human body using a regional approach. Topics include topographical and functional anatomy, clinical correlations, and introduction to radiology. The course provides the descriptive basis for understanding human structure and function encountered in succeeding courses and medical practice. Previously offered as BIOM 5118. Same course as PCME 8116.
Credit hours: 6
Contact hours: Contact: 6 Other: 6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 5121 Biomedical Sciences Journal Club
Description: Each week students will read and discuss a recent peer-reviewed research article in a respected biomedical journal. The objectives are to learn to critically evaluate published research, develop scientific communication skills, and learn about recent scientific findings from a variety of fields in a group setting.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Biomedical Sciences

BIOM 5122 Introduction and Survey of Human Structure
Description: This is an introductory survey course aimed at presenting an overview of structures and functions of the body's systems using a regional approach. Discover the human body through recorded lectures and virtual dissections of cadaveric specimens using 3D anatomy software. Seven online modules will cover introductory survey information from all regions of the human body. The course is suitable for students interested in learning human structure in a self-paced, online environment.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 3 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 5124 Systems Histology & General Pathology
Description: Introduction to the histophysiology and general pathology of the basic tissues and includes the cardiovascular, respiratory, hematology, lymphatic, genitourinary, endocrine, reproductive, integumentary, and gastrohepatic systems. Lecture, lab, and group discussions are used as the main means of presenting the material. Students will learn how structure relates to physiology and how pathology disrupts cell processes and the normal architecture.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5133 Neuroanatomy
Prerequisites: Graduate standing in the biomedical science program.
Description: A continuation of gross anatomy to include anatomy of the head region. Emphasis on neuroanatomy. Laboratory sessions on head and brain dissection and special demonstrations. The relation of basic principles with osteopathic medicine and neurology in clinical correlation sessions. Previously offered as BIOM 5132.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5211 Advanced Microscopy
Description: An intensive block-style course offering hands-on training in microscopy techniques, from basic to advanced, guided by and expert instructor.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Biomedical Sciences

BIOM 5215 Medical Biochemistry
Description: Broad survey of the chemical classes and metabolic processes that are consistent with the normal functions of biosystems. Functions and interrelationships of these processes in human metabolism to provide a foundation for understanding the chemistry of disease states when discussed in the second-year program.
Credit hours: 5
Contact hours: Lecture: 5 Contact: 5
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5311 Anaerobic Microbiology
Prerequisites: BIOM 5316 - Medical Microbiology and Immunology (or equivalents with consent of instructor).
Description: This course explores the physiology, diversity, and clinical relevance of anaerobic microorganisms. Students examine host-microbe interactions, cultivation strategies, and microbiome analyses, while engaging with primary literature, case studies, and experimental design to understand the role of anaerobes in health, disease, and therapeutic innovation.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5316 Medical Microbiology and Immunology
Prerequisites: BIOM 5215.
Description: Similarities and differences among pathogenic microorganisms. Characteristics, pathogenesis and control of medically important microorganisms and disorders of the immune system. Laboratory exercises on the basic serological and microbiological procedures used in the diagnosis of infectious diseases.
Credit hours: 6
Contact hours: Lecture: 6 Contact: 6
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5616 Graduate Biomedical Physiology
Description: This course provides a comprehensive study of the regulatory mechanisms within the major organ systems that enable the human body to maintain homeostasis. The fundamentals of physiology are emphasized in discussions of the integration of structure and function in all systems of the body, along with the integration of function among systems. Problem-solving activities are utilized to develop student understanding and enhance subsequent earning — both in the basic and clinical sciences.
Credit hours: 6
Contact hours: Lecture: 6 Contact: 6
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5621 Introduction to Translational Research
Description: Focuses on biomedical and clinical research from bench to bedside and back. Provides examples of how basic science and clinical observations lead to translational research.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5631 Disease Research in Medicine
Prerequisites: Biomedical Foundations or equivalent. Permission of instructor.
Description: Introduction to selected diseases of priority in medicine and to funding agencies. Includes discussing current clinical and research challenges.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5641 Cornerstones of Vertebrate Paleontology
Description: In-depth discussion of topics in Vertebrate Pathology, emphasizing critical thinking skills. Based on evaluation of the primary literature, and covering diverse methodological approaches to interdisciplinary research questions.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5651 Morphological Phylogenetic Systematics
Description: Introduces guiding principles, approaches, and techniques used to reconstruct the evolutionary history of organisms, with a special emphasis on constructing and utilizing morphological characters from the skeletons of fossil and extant vertebrates to infer their evolutionary relationships. This course introduces tree-building methods and phylogenetic classification frameworks.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5653 Evolutionary Physiology
Description: Survey course that covers the basic physiology of, primarily, mammalian species. Uses an evolutionary approach that integrates form with function by outlining the evolutionary sequences thought to have resulted in modern organ structures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5663 Graduate Pharmacology
Description: Provides an enriched understanding of the mechanism of actions of pharmacological agents used to treat human diseases.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5672 Scientific Outreach Training for Graduate Students
Description: Provides interactive opportunities with elementary school-aged children with a particular emphasis on developing an understanding of the scientific method as a strategy for real-life problem-solving.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5683 Chronic Inflammation and Cancer Development
Description: Provides insight that describes the issues of chronic inflammation, auto-immune and cancer development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5693 Principle Concepts of Cellular and Molecular Immunology
Description: Introduces and explores basic concepts of immunology with cellular and molecular components that play a role in normal and disease states.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5963 Case Studies in Medical Smart Garment Engineering
Prerequisites: BIOM 4893 or DHM/IEM 4893 or consent of instructor.
Description: Designed to activate critical thinking skills needed for problem solving in wearable sensing system development. Same course as DHM 5963.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 5983 Principles of Neuroscience
Prerequisites: Science or Psychology major and permission of instructor.
Description: This course examines foundational theories and principles related to the neural mechanisms controlling physiological processes and behavior. Topics covered include cellular neurobiology, neuronal signaling, neural development and plasticity, comparative neuroanatomy, and neurobiology of complex brain functions such as sensory processing, arousal, emotions learning, and memory. Previous coursework in physiology recommended. Same course as BIOL 5073 and PSYC 5073. May not be used for degree credit with BIOL 4073 or PSYC 4073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 5984 Capstone in Medical Smart Garment Engineering
Prerequisites: BIOM or DHM 5963 and three credits of chosen emphasis area.
Description: Project-based where interdisciplinary teams identify a wearable sensing application and collaborate to engineer a prototype that addresses a defined need. Industry collaboration encouraged. Same course as DHM 5984.
Credit hours: 4
Contact hours: Lecture: 1 Lab: 6 Contact: 7
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 5993 Principles of Neuroanatomy
Prerequisites: Science or psychology major and permission of instructor.
Description: Comprehensive overview of the normal structure and function of the nervous system and its divisions under conditions of normal health as well as disease. Designed for graduate students neuroscientists, pre-medical, and health professions students. An introduction to clinically-oriented neurological assessment will be provided.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6000 Research and Dissertation
Prerequisites: Consent of major adviser.
Description: Research in biomedical sciences for PhD degree. Offered for variable credit, 1-15 credit hours, maximum of 45 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6010 Topics in Biomedical Sciences
Prerequisites: Consent of instructor.
Description: Tutorials in areas of biomedical sciences not addressed in other courses. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6013 Educational Methods in the Biomedical Sciences
Prerequisites: Graduate standing.
Description: Introduces graduate students to a full range of faculty roles and responsibilities related to instructional methods used at the health sciences center.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6023 Research Methods And Design
Prerequisites: Graduate standing.
Description: Introduction to concepts of research design, methodology, sampling techniques, internal and external validity, and the scientific method.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6111 Theoretical Foundations In Vertebrate Functions Morphology
Prerequisites: Graduate standing in the biomedical sciences program Anatomy and Vertebrate Paleontology track.
Description: This course explores the theoretical literature pertaining to vertebrate functional morphology research.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6173 Molecular Epigenetics
Prerequisites: BIOM 6743, and/or BOM 6762.
Description: Designed to introduce students to concepts of epigenetics and how different epigenetic factors modulate gene expression and heritable phenotypes without changing the underlying gene sequences. This course will also discuss the underlying epigenetic mechanisms for different human diseases.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6175 Molecular and Cellular Biology
Prerequisites: Consent of course coordinator.
Description: Cell biology, including cellular macromolecules, energetics, metabolism, regulation, organization and function of cellular organelles, flow of genetic information, and the regulation of selected cell activities.
Credit hours: 5
Contact hours: Lecture: 5 Contact: 5
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6183 Cellular and Molecular Biology of Pain
Prerequisites: BIOM 5133 or BIOM 5616.
Description: An understanding of the cellular and molecular events that occur in the initiation and transmission of nociceptive (painful) sensory signaling.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6193 Paleomammalogy
Description: The study of mammalian paleobiology through seminars and field work. Field trips are required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6200 Neurobiology of Addiction
Prerequisites: Graduate Standing, Instructor permission.
Description: A broad review of the foundations for understanding of what occurs when a drug enters the body and the brain, how your brain changes, and how this process can make recovering from addiction a challenge. Special attention will be paid to the neuroanatomy and circuitry of reward, basic concepts and definitions involving substance use disorders, neural dysfunction under addiction, the stages of addiction and implications for treatment. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6214 Advanced Topics in Medical Biochemistry
Prerequisites: BIOM 5215 or concurrent enrollment.
Description: Chemical basis of protein, carbohydrate, lipid, nucleic acid, steroid and porphyrin structure, function, and metabolism as related to health and disease. Offered for variable credit, 3-15 credit hours, maximum of 15 credit hours.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6233 Enzyme Analysis
Prerequisites: BIOM 6214.
Description: Characteristics, separation, detection, assays, kinetics, mechanisms of catalysis, inhibition or inactivation, and clinical applications of enzyme analysis.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6243 Human Nutrition
Prerequisites: BIOM 5215.
Description: Role of vitamins and minerals in maintaining normal metabolism, role of nutrients in providing athletic and immune system performance, and pathophysiology associated with nutrient deficits and nutrient excesses. Role of drugs in inducing cancer and increasing nutrient requirements.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6263 Techniques in Biomedical Sciences
Prerequisites: BIOM 5215 or BIOM 5316; or consent of instructor.
Description: Topics include advanced microbial cultivation, PCR and gel electrophoresis, molecular cloning, DNA/RNA quantification and methylation analysis, protein extraction and quantification, antibody-based assays (e.g., ELISA), mammalian cell culture, behavioral neuroscience methods, immunohistochemistry, and flow cytometry. New instrumentation and data analysis platforms (e.g., R programming) will be introduced, along with a focus on digital lab notebooks and lab safety practices.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6333 Immunology
Prerequisites: Introductory Biochemistry, and Microbiology, e.g. BIOM 5215 and BIOM 5316, or equivalents. Permission of instructor is required.
Description: Fundamental concepts of immunology, including immunobiology and immunopathology, with an introduction to its experimental basis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6343 Microbial Physiology
Prerequisites: BIOM 5215, BIOM 5316.
Description: The chemical composition, growth and metabolism of prokaryotic organisms including regulation and control of metabolic pathways with emphasis on metabolism unique to microbes.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6353 Molecular Virology
Prerequisites: BIOM 5215, BIOM 5316, consent of instructor.
Description: The fundamental molecular biology of the virus life cycle using one virus as a model to examine penetration, gene regulation, replication, assembly and egress, as well as host immunological response and epidemiology.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6363 Immunobiology of Infectious Disease
Prerequisites: Biochemistry, Medical Microbiology and Immunology.
Description: Graduate course to provide an understanding of cellular and molecular events that occur during the initiation of immune response to main causes of human pathogens.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6413 Graduate General Pathology and Laboratory Medicine
Prerequisites: Graduate standing and BIOM 5215; permission of the instructor is required; BIOM 5616 and BIOM 5316 are recommended.
Description: An introduction for biomedical researchers to disease processes, from etiologies to cell and tissue responses that manifest as diseases.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6513 Neuropharmacology
Prerequisites: BIOM 5983.
Description: This course covers the pharmacology of agents affecting CNS function, the interaction of drugs with their targets, and the actions of endogenous neuromodulators at CNS sites. This course emphasizes molecular mechanisms underlying the action of neuropharmacological agents used in treating various neurological/psychiatric diseases (e.g., drug dependence, depression, schizophrenia), and will provide basic knowledge while enhancing reasoning skills, literature searches, teamwork, and presentations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6523 Cardiovascular Physiology and Pharmacology
Prerequisites: BIOM 5513, BIOM 5523.
Description: Physiologic and pharmacologic mechanisms of cardiac and vascular smooth muscle function and control at the molecular, cellular, tissue and organ system levels.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6543 Environmental Toxicants and the Brain
Description: Introduces the fundamental aspects of neurotoxicology using both cellular and molecular approaches in neurochemistry and toxicology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6551 CT Techniques in Evolutionary Anatomy
Prerequisites: Graduate standing, some experience (academic or professional) with either anatomy or 3D visualization.
Description: The analysis of computed tomography (CT) scans has become a standard practice in evolutionary anatomy. This course will introduce students to many of the techniques used in the analysis and segmentation of CT scans. Students will be given a small scan of their own to work on over the course.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6583 Neuroinflammation
Prerequisites: Graduate standing.
Description: Provides an understanding of inflammation in the central nervous system through discussion of current and experimental pharmacologic strategies designed to modulate neuroinflammation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6613 Environmental Physiology
Prerequisites: BIOM 5616.
Description: Environmental parameters, including barometric pressure, temperature, light, gravity, noise, and crowding, having an impact on homeostatic mechanisms in the normal human with special emphasis on acute and chronic adaptations in response to changes in environmental parameters.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6643 Neurophysiology
Prerequisites: BIOM 5616.
Description: Fundamental concepts of the motor and sensory components of the nervous system with emphasis on integrative mechanisms.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6653 Graduate Seminar In Signal Transduction
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6662 Research Ethics and Survival Skills for the Biomedical Sciences
Prerequisites: Graduate standing.
Description: Provides a basic framework for scientific conduct and practice and the skills needed for a career in the biomedical sciences.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6663 Neuroethology
Prerequisites: Permission of instructor.
Description: This course is designed to provide an analysis of the neuroendocrine basis of behavior. Lectures will serve as the format of presentation to provide a sound understanding of the neuroethological concepts discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6673 Genomics
Prerequisites: BIOM 6175.
Description: The course begins with a review of molecular biology and then proceeds to the structure and organization of eukaryotic, prokaryotic, and organelle genomes. Techniques in dividing, sequencing, annotating, and mapping genomes are studied as well as those of global gene expression profiling. The course finishes with a look at the many applications of genomics in biomedical science and disease.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6705 Advanced Gross Anatomy
Prerequisites: Consent of course coordinator.
Description: General and specific concepts of regional human anatomy. The primary focus is the range of normal for all organ systems and interrelationships. Provides an advanced descriptive basis for understanding human structure and function encountered in succeeding courses and in the practice of teaching gross anatomy to graduate and medical students.
Credit hours: 5
Contact hours: Lecture: 3 Lab: 4 Contact: 7
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6712 Biomechanical Modeling
Description: How do animals exploit and respond to their physical environment as they behave, grow, and evolve? This course presents an overview of biomechanical concepts and simulation methods, including structural mechanics, muscle-driven movement, and fluid mechanics. Students explore biomechanical challenges and adaptations through lecture, readings, problem sets, and discussion. Labs apply biomechanical simulation towards research questions and a capstone funding proposal.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6713 Applications of GIS in Evolutionary Biology
Prerequisites: Consent of course coordinator.
Description: Applications of Geographic Information Systems (GIS) in Evolutionary Biology. Emphasize applications of GIS in methods associated with vertebrae paleontology (e.g., tooth morphology and mapping). The lecture portion will introduce students to the appropriate literature and provide discussions on evolutionary theories and uses of GIS to test such theories, while the laboratory portion will provide hands-on exercises with GIS software.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6723 Field Techniques in Vertebrate Paleontology
Description: This course introduces students to techniques and tools necessary to conduct field work in vertebrate paleontology. The primary techniques will include mapping, prospecting and collecting both micro- and macrofossil vertebrate remains. Processing of rock matrix with microvertebrates will be emphasized, but preparation of macrofossil remains for transportation to the research lab will be taught.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6733 Human Microbiome in Health and Disease
Prerequisites: BIOM 6793 Foundations in Medical Microbiology or BIOM 5316 Medical Microbiology and Immunology.
Description: An in-depth discussion of the interactions of the microbiome with the human host. The course focuses on current research and provides a comprehensive overview on metagenomic and multi-omics analyses used in model systems and clinical studies to elucidate the role of the microblome in human health and disease.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6743 Foundations in Medical Genetics, Molecular Biology and Development
Description: Human genetics and development, including structure and function of nucleic acids, gene regulation, basis of inheritance, and development of the human embryo. Same course as PCME 8743.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6752 Foundations in Medical Cell and Tissue Biology
Description: Structure and function of cells within tissues as it relates to human health and disease, including cell transport, cell-to-cell communication and organ system control. Same course as PCME 8752.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6763 Foundations in Medical Biochemistry & Pharmacology
Description: Biochemical foundations of human health and disease, including protein structure and function, bioenergetics, metabolism, nutrition, and membrane dynamics. General principles of pharmacokinetics and pharmacodynamics, focusing on how drugs interact with biological systems to treat disease. Same course as PCME 8762. Previously offered as BIOM 6762.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6771 Foundations in Medical Pharmacology
Description: General principles of pharmacokinetics and pharmacodynamics of drugs used to treat human disease. Same course as PCME 8771.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6781 Foundations in Medical Immunology
Description: Immune system in human health and disease, including antibody and cell-mediated immune responses, inflammation, immune responses to infectious agents and allergens, immunodeficiencies and malignancies of the immune system. Same course as PCME 8781.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6793 Foundations in Medical Microbiology
Description: Infectious agents, including viruses, bacteria, fungi and parasites, their structure, genetics and mechanisms of pathogenesis in human disease. Previously offered as BIOM 6791. Same course as PCME 8703.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6800 Critical Readings in Biomedical Sciences
Description: Provides experience with the primary literature in biomedical sciences, with training in evaluation methodologies, experimental design, data presentation, and statistical designs. Previously offered as BIOM 6802. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6810 Structure and Function of the Human Cardiovascular System
Prerequisites: Permission of Instructor.
Description: Provides integrated biomedical study of the human cardiovascular system. Same course as PCME 8814. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6820 Structure and Function of the Human Gastrointestinal/ Hepatic System
Prerequisites: Permission of Instructor.
Description: Provides integrated biomedical study of the human gastrointestinal and hepatic systems. Same course as PCME 8823. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6830 Biomedical Perspectives on Human Hematology
Prerequisites: Permission of Instructor.
Description: Provides integrated biomedical study of the human blood and lymphatics, and associated disorders. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours. Same course as PCME 8833.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6840 Structure and Function of the Human Musculoskeletal System
Prerequisites: Permission of Instructor.
Description: Provides integrated biomedical study of the human musculoskeletal system and associated disorders. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours. Same course as PCME 8841 and PCME 8842.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6843 Vertebrate Osteology
Description: Students learn to identify skeletal elements of Vertebrata. Focus is on extant vertebrates, but fossil taxa may also be used. Foci include: assessing at what taxonomic level an identification may be made; synapomorphies, homoplasies, and inference of ecology from skeletal elements; reading differential diagnoses and writing useful osteological description, and; distinguishing co-occurring taxa. Students will also receive some training in using and building osteological collections.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6850 Structure and Function of the Human Renal System
Prerequisites: Permission of Instructor.
Description: Provides integrated biomedical study of the human renal system. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours. Same course as PCME 8853.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6860 Structure and Function of the Human Reproductive Systems and Reproductive Biology
Prerequisites: Permission of Instructor.
Description: Provides integrated biomedical study of the male and female human reproductive systems and reproductive biology. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours. Same course as PCME 8863.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6870 Structure and Function of the Human Respiratory System
Prerequisites: Permission of Instructor.
Description: Provides integrated biomedical study of the human respiratory system. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours. Same course as PCME 8873.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6880 Biomedical Perspectives on Psychiatry
Prerequisites: Permission of Instructor.
Description: Permission of Instructor. Provides clinical presentation, differential diagnosis, etiology (including pathophysiological etiologies), basic pharmacology of medications used to treat the disorder, clinical pharmacology, and psychosocial treatments. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours. Same course as PCME 8883.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6893 Fundamentals of Medical Smart Garment Engineering
Prerequisites: 90+ hours or Graduate standing.
Description: Students will gain elementary knowledge in focus areas of health science, biomedical sensing and analysis, and apparel design necessary to undertake the development of wearable electronic sensing systems. Lecture and laboratory based instruction. May not be used for degree credit with DHM 4893 or IEM 4893 or 5893.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biomedical Sciences

BIOM 6900 Structure and Function of the Human Endocrine System
Description: Provides integrated biomedical study of the human endocrine system, and associated disorders. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours. Same course as PCME 8903.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6910 Structure and Function of the Human Nervous System
Description: Provides integrated biomedical study of the human nervous system. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Same course as PCME 8916.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biomedical Sciences

BIOM 6922 Scientific Communication in Biomedical Sciences
Description: Provides experience in scientific writing and oral presentations.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6933 Cornerstones of Graduate Biomedical Sciences
Description: Discussion of topics in the foundational courses of biomedical sciences, emphasizing critical thinking skills and diverse methodological approaches in understanding interdisciplinary research questions and in evaluations of the primary literature. Intended to be taken concurrently with foundation courses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6943 Advanced Vertebrate Paleontology
Prerequisites: Comparative anatomy or human anatomy, and assumes an undergraduate level understanding of vertebrate paleontology, biology, and evolution.
Description: Explores vertebrate evolution in a phylogenetic, ontogenetic, and stratigraphic framework. Students discuss recent ideas in paleontology from scientific literature and/or instructor-led exercises. Appreciation of homologies and autapomorphies is gained through exploration of extant verterbrate anatomy. Communication skills are developed through oral presentations and writing. Students will demonstrate a synthesis of concepts by integrating a chosen evolutionary theme into these activities.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Biomedical Sciences

BIOM 6952 Paleohistology Techniques
Prerequisites: Undergraduate level understanding of biology, evolution, and histology.
Description: Recognize and interpret modern and fossil bone tissue microstructures. The contributions of paleohistology to understanding extinct vertebrate physiology will be explored through discussions of peer reviewed articles. Students will receive hands-on training in paleohistology techniques.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6962 Evolutionary Biomechanics
Prerequisites: BIOM 5116 or HHP 2654 or ZOOL 3114.
Description: Evaluation of topics covering the application of engineering principles to biological systems in an evolutionary framework. Topics will examine the material properties of anatomical tissues, how forces act internally and externally on organisms and their structures, kinematics, and biomechanical model systems. Primary literature and experimental designs will also be explored.
Credit hours: 2
Contact hours: Lecture: 1 Contact: 2 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Biomedical Sciences

BIOM 6972 Role of Nicotinic Acetylcholine Receptors in Neuropsychiatric Disorders
Prerequisites: BIOM 6513 Neuropharmacology.
Description: An in-depth review of physiological aspects of nicotinic acetylcholine receptors (AChRs), its involvement in neuropsychiatric (depression, drug addiction) neurological (Alzheimer's disease), and non-neurological (inflammation) diseases, and as targets for pharmacotherapy. This course is designed to emphasize self-learning and team-learning in the form of student seminars to address new pharmacological and neurological evidence supporting novel pharmacotherapies.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Biomedical Sciences

BIOM 6973 Evolutionary Development of Vertebrates
Description: Beginning with human embryology we ask: Why does human anatomy look the way it does? This course follows this question into broader inquiries on metazoan origins, diversification, and vertebrate morphologies. This is a flipped course teaching embryology and developmental genetics in an explicitly evolutionary framework with particular focus on the diversity of living vertebrates and the interpretation of fossil vertebrates.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Biomedical Sciences

Biosystems & Ag Engineering (BAE)

BAE 1011 Introduction to Biosystems Engineering
Description: Introduction to the field of Biosystems Engineering through hands-on activities and interactive sessions with departmental faculty, designed to explore key topics, technologies, and career pathways in the discipline. Previously offered as BAE 1012.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Biosystems & Ag Eng

BAE 1022 Experimental Methods in Biosystems Engineering
Prerequisites: BAE 1012 or consent of instructor.
Description: An introduction to the basics of instrumentation, measurement techniques, and data analysis, with an emphasis on written communication skills. Lecture and laboratory exercises that address measurement principles, including accuracy, precision and error analysis.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 2013 Computational Methods in Biosystems Engineering
Description: Introduction to computer-based methods applied to biosystems and agricultural engineering problems. Application of spreadsheet tools and programming methods to solve engineering problems. Course previously offered as BAE 2012.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 3013 Heat and Mass Transfer in Biological Systems
Prerequisites: ENSC 3233, MATH 2233.
Description: Mechanisms of heat and mass transfer, with specific applications in transport processes of biological systems. Introduction to steady state and transient heat conduction and convection, radiation, diffusion, simultaneous heat and mass transfer.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 3023 Instruments and Controls
Prerequisites: ENSC 2613, MATH 2233.
Description: Design of control and instrumentation systems, including sensor and actuator principles, interface electronics, system identification, modeling, and performance specification. Applications in biological and agricultural systems. Design project required.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 3033 Engineering Properties of Biological Materials
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) or PBIO 1404, PHYS 2014, MATH 2144.
Description: Building on basic biology and engineering fundamentals to characterize properties of biological materials such as moisture content and water movement, rheology, electromagnetic response, thermal properties, conveyance requirements, psychometric interactions and heating/cooling response. Course previously offered as BAE 2022 and BAE 2023.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 3113 Biological Applications in Engineering
Prerequisites: BAE 2012, BIOL 1114 or (BIOL 1113 and BIOL 1111), ENSC 2213, 3233, MATH 2233 or concurrent enrollment.
Description: Introduction to engineering applications of biological processes. Technologies covered include fermentation systems, enzyme kinetics, wastewater treatment and bioremediation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 3213 Energy and Power in Biosystems Engineering
Prerequisites: Completion or concurrent enrollment in ENSC 2213, ENSC 2613, ENSC 3233.
Description: Analysis and design of energy generation, transmission, and utilization in the production and processing of biological materials.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 3223 Principles of Agriculture and Off-Road Machinery
Prerequisites: Completion or concurrent enrollment in ENSC 3233, ENSC 2613 and SOIL 2124.
Description: Principles of design, function, operation, testing and application of agricultural and off-road equipment and systems. Vehicle and implement system dynamics and hitching, and plant and soil interaction with machines. Machinery evaluation and standardized test procedures emphasizing safe and efficient performance of modern farm and off-road equipment.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 3313 Natural Resources Engineering
Prerequisites: BAE 2023, STAT 2013, and ENSC 3233 or concurrent enrollment.
Description: Principles and practices of engineering analysis and design applied to hydrology, water quality, erosion and sedimentation, air quality, irrigation and animal waste management. Course previously offered as BAE 3323.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 4001 Professional Practice in Biosystems Engineering
Prerequisites: Concurrent enrollment in BAE 4012.
Description: Preparation for professional practice through case studies about ethics, legal liability, safety, and societal issues. Practical professional communications experience.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biosystems & Ag Eng

BAE 4010 Special Topics in Biosystems Engineering
Description: New and emerging areas of study in Biosystems Engineering. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 4012 Senior Engineering Design Project I
Prerequisites: Completion or concurrent enrollment in ENSC 2143, BAE 3013, BAE 3023, BAE 3213, BAE 4001.
Description: Team work on professional level design projects, using design procedures to develop specifications, propose alternative solutions, consider external constraints, develop drawings or plans, construct, test and evaluate designs.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 4023 Senior Engineering Design Project II
Prerequisites: BAE 4001, BAE 4012. BAE 4023 must be taken the immediate semester after completion of BAE 4012.
Description: Second of two-semester sequence of senior design courses. Course previously offered as BAE 4022.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 4043 In-Vehicle Networking for Off-Road and Heavy Duty Systems
Prerequisites: BAE 3023.
Description: Analysis of in-vehicle network systems and associated design issues. Introduction to CAN-based networking, serial and parallel communications, sensor interfacing, computer control of external devices, and comprehensive coverage of ISO 11783 and BAE J1939.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 4213 Precision Agriculture
Prerequisites: MATH 1513, senior standing.
Description: Introduction to the concepts of precision agriculture including analysis of spatial variability, relationships of fertility and crop response, geographical information systems, variable rate technology, optical sensing, global positioning systems, and yield monitoring. Case studies included for detailed analyses. Same course as SOIL 4213. May not be used for Degree Credit with BAE 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 4224 Machinery for Production and Processing
Prerequisites: ENSC 2143.
Description: Analysis and design of machine components and machine systems for production and processing of biological materials. Component failure theory and analysis. Assembly and design of mechanical elements. Course previously offered as BAE 4223. May not be used for Degree Credit with BAE 5224.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 4283 Bioprocess Engineering
Prerequisites: BAE 3013, BAE 3113 or consent of instructor, ENSC 3233.
Description: Application of fundamental engineering principles to biochemical and biological processes. Introduction to cellular processes, fermentation technology, biological mass transfer and kinetics, bioreactor design and scale-up and downstream processing. Same course as CHE 4283. May not be used for Degree Credit with BAE 5283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 4314 Design Hydrology
Prerequisites: BAE 3033, ENSC 3233, and STAT 4033 or STAT 4073, or concurrent.
Description: Basic principles of surface and groundwater hydrology and their application in engineering problems. The hydrologic cycle, weather and hydrology, precipitation, evaporation, transpiration, subsurface waters, stream flow hydrographs, hydrologic and hydraulic stream routing, probability of hydrologic events and application of hydrologic models. Laboratory component will emphasize the application of hydrologic and hydraulic models and the quantification of hydrologic and hydraulic parameters. Course previously offered as BAE 4313. May not be used for degree credit with BAE 5314.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 4323 GIS for Water Resources
Prerequisites: ENSC 2113 or GEOG 4203 or LA 4453 or NREM 2083.
Description: Various aspects of GIS applications in water resources, including spatial coordinate systems, acquisitioning water resources GIS data, water resources data management and processing, physiographic terrain analysis and mapping, river and watershed networks, National Hydrography Dataset (NHD), and Arc Hydro. May not be used for degree credit with BAE 5323.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 4324 Water Quality Engineering
Prerequisites: MATH 2233; BAE 2013; CHEM 1414 or CHEM 1515; or consent of instructor.
Description: Assessment of water quality, water and wastewater treatment, as well as point and nonpoint source pollution processes. Additional topics include principles of environmental chemistry, water body assessment, and integrated watershed management. May not be used for Degree Credit with BAE 5374.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 4343 Environmental Contaminant Fate and Transport
Prerequisites: BAE 4324 or consent of instructor.
Description: Physical, chemical, and biological processes that govern the environmental fate and transport of contaminants in natural systems including soil, water, and air. Topics include conceptual and mathematical models describing transport processes, mass balance, chemical equilibria and kinetics, and modelling. May not be used for degree credit with BAE 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 4400 Special Problems
Description: Investigations in specialized areas of biosystems engineering. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

BAE 4413 Food Engineering
Prerequisites: BAE 3013 and ENSC 3233, ENSC 2213.
Description: Analysis and design of various unit operations in food processing including thermal processing, drying, evaporation, freezing, processing non-Newtonian fluids and quality changes during processing. Course previously offered as BAE 4423. May not be used for Degree Credit with BAE 5443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5000 Master's Research and Thesis
Prerequisites: Consent of major professor.
Description: Research and thesis writing. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

BAE 5010 Advanced Topics in Biosystems Engineering
Prerequisites: Graduate standing or consent of instructor.
Description: New and emerging areas of study in Biosystems Engineering. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5030 Problems in Biosystems Engineering and Agricultural Technology
Prerequisites: Consent of instructor.
Description: Problems associated with biosystems engineering and agricultural technology. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

BAE 5213 Renewable Energy Engineering
Prerequisites: ENSC 2213, ENSC 3233 or consent of instructor.
Description: Renewable technologies such as solar, wind, geothermal, hydroelectric, and biomass to generate energy for electricity, heating, transportation, and other uses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5223 Precision Agriculture
Prerequisites: MATH 1513.
Description: Introduction to the concepts of precision agriculture including analysis of spatial variability, relationships of fertility and crop response, geographical information systems, variable rate technology, optical sensing, global positioning systems, and yield monitoring. Case studies included for detailed analyses. May not be used for degree credit with BAE 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5224 Machinery for Production and Processing
Prerequisites: ENSC 2143.
Description: Analysis and design of machine components and machine systems for production and processing of biological materials. Component failure theory and analysis. Assembly and design of mechanical elements. May not be used for degree credit with BAE 4224.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5243 Biological Conversion for Advanced Biofuels
Prerequisites: ENSC 2213.
Description: Fundamental principles and applications of converting biomass to advanced biofuels. Focus will be on biological processes, fermentor design and operation, product recovery and emerging fuels.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5283 Advanced Bioprocess Engineering
Prerequisites: Consent of instructor.
Description: Application of fundamental engineering principles to biochemical and biological processes. Introduction to cellular processes, fermentation technology, biological mass transfer and kinetics, bioreactor design and scale-up and downstream processing. Same course as CHE 5283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5313 Watershed Modeling
Prerequisites: BAE 4313 or equivalent.
Description: A computer modeling course with an emphasis on chemical and physical processes governing nonpoint source pollution (nitrogen, phosphorus, sediment) at the basin scale. The laboratory use of state-of-the-art models applied to a variety of agricultural systems. "Hands on" use of comprehensive hydrologic water quality models that utilize spatial data in a geographic information system. Models and parameter uncertainty, digital data sources, parameter estimation and model testing, calibration and validation. For students with advanced personal computer skills.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 6 Contact: 7
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 5314 Design Hydrology
Prerequisites: BAE 2023 and ENSC 3233, and STAT 4033 or STAT 4073, or concurrent.
Description: Basic principles of surface and groundwater hydrology and their application in engineering problems. The hydrologic cycle, weather and hydrology, precipitation, evaporation, transpiration, subsurface waters, stream flow hydrographs, hydrologic and hydraulic stream routing, probability of hydrologic events and application of hydrologic models. Laboratory component will emphasize the application of hydrologic and hydraulic models and the quantification of hydrologic and hydraulic parameters. Course previously offered as BAE 4313. May not be used for degree credit with BAE 4314.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 5323 GIS for Water Resources
Prerequisites: ENSC 2113 or GEOG 4203 or LA 4453 or NREM 2083.
Description: Various aspects of GIS applications in water resources, including spatial coordinate systems, acquisitioning water resources GIS data, water resources data management and processing, physiographic terrain analysis and mapping, river and watershed networks, National Hydrography Dataset (NHD), and Arc Hydro. May not be used for degree credit with BAE 4323.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 5324 Modeling and Design in Storm Water and Sediment Control
Prerequisites: BAE 4313 or equivalent.
Description: Analysis and design of storm water, sediment and water quality systems with a focus on application to urban areas and developments in the urban-rural fringe. Advanced concepts in hydrologic modeling with kinematics, diffusion and dynamic modeling of flow; soil erosion, sediment transport and sediment control; storm water quality modeling and the impact of best management practices. In laboratories, use of hydrologic, sediment, and water quality models in analysis and design for real-world problems.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 5333 Machine Learning in Natural Resources
Prerequisites: STAT 5013 or instructor permission.
Description: Machine learning approaches for regression (including time series modeling), classification, and clustering using data derived from natural resources and agricultural systems. Addresses practical considerations such as model selection, data partitioning, hyperparameter selection, model evaluation, and model interpretation. Highlights unique challenges (e.g., data sparsity) and opportunities (e.g., incorporating domain knowledge) with using machine learning in natural resource and agricultural applications with an emphasis in water resources.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 5343 Environmental Contaminant Fate and Transport
Prerequisites: BAE 4324 or consent of instructor.
Description: Physical, chemical, and biological processes that govern the environmental fate and transport of contaminants in natural systems including soil, water, and air. Topics include conceptual and mathematical models describing transport processes, mass balance, chemical equilibria and kinetics, and modeling. May not be used for degree credit with BAE 4343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5353 Environmental and Ecological Risk Assessment
Prerequisites: Graduate standing.
Description: Process and methodologies associated with human, environmental and ecological risks. Will quantify uncertainty in human perturbation, management, and restoration of environmental and ecological processes. Course available online only through AG*IDEA consortium.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5374 Water Quality Engineering
Prerequisites: Graduate standing.
Description: Assessment of water quality, water and wastewater treatment, as well as point and nonpoint source pollution processes. Additional topics include principles of environmental chemistry, water body assessment and integrated watershed management. May not be used for degree credit with BAE 4324.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 5413 Advanced Data Acquisition and Control
Prerequisites: BAE 3023 or equivalent.
Description: Principles and operation of commercial instruments and data acquisition systems used in biological, environmental, and agricultural applications. Hands-on projects that will improve system design, development and programming skills. Introduction of advanced topics including machine vision, spectroscopy, and data communication networks.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5423 Food Rheology
Prerequisites: ENSC 3233.
Description: Characterization and analysis of the rheological properties of food products. Focus on measurement techniques and equipment, including tube and rotational type instruments, with specific applications in food processing.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

BAE 5433 Biosensors
Prerequisites: PHYS 2114 and CHEM 3053 or equivalent.
Description: Principles and applications of biosensors in food analysis, disease diagnostics, and environmental monitoring. Emphasis on conceptual design and characterization of biosensors. Introduction to recent advances in biodetection using nanotechnology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5443 Food Engineering
Prerequisites: BAE 3013 and ENSC 3233, ENSC 2213.
Description: Analysis and design of various unit operations in food processing including thermal processing, drying, evaporation, freezing, processing non-Newtonian fluids and quality changes during processing. May not be used for degree credit with BAE 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 5501 Seminar
Description: Discussion of current literature with special emphasis on research and experimental techniques. Graded on a pass-fail basis.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Biosystems & Ag Eng

BAE 6000 Doctoral Research and Dissertation
Prerequisites: Approval by the student's advisory committee.
Description: Research and doctoral dissertation preparation. Offered for variable credit, 1-10 credit hours, maximum of 42 credit hours.
Credit hours: 1-10
Contact hours: Contact: 1-10 Other: 1-10
Levels: Graduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

BAE 6101 Teaching Practicum in Biosystems Engineering
Prerequisites: One semester of doctoral study in Biosystems Engineering, or consent of instructor; International students must pass the ITA exam.
Description: Philosophies and techniques of resident and non-resident teaching, including experiences in preparation, presentation, and evaluation of lectures, laboratories, extension or continuing education programs. Course previously offered as BAE 6100.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

BAE 6213 Advanced Biomass Thermochemical Conversion
Prerequisites: ENSC 2213.
Description: Advanced study, evaluation, and application of thermochemical conversion pathways in biofuel production. Specific topics include biomass gasification, pyrolysis, liquefaction, and heterogeneous catalysis. Course available online only through AG*IDEA consortium. Course previously offered as BAE 6100.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 6313 Stochastic Methods in Hydrology
Prerequisites: CIVE 5843, STAT 4033.
Description: Stochastic and statistical hydrologic analyses of surface water and groundwater systems. Analysis of urban and rural drainage and detention systems. Same course as CIVE 6843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 6333 Fluvial Hydraulics
Prerequisites: BAE 3013 or equivalent.
Description: Principles of sediment detachment and transport in fluvial systems. Design of stable channels and flow resistance relationships for sediment-laden flows.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 6343 Ground Water Contaminant Transport
Prerequisites: SOIL 5583 or CIVE 5913 or GEOL 5453.
Description: Principles of solute and multiphase transport in soils and ground water. Effects of advection, diffusion, dispersion, degradation, volatilization and adsorption. Relationships between laboratory and field scale transport. Contamination by nonaqueous phase liquids.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 6503 Similitude in Research
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

BAE 6520 Problems in Soil and Water Engineering
Prerequisites: Consent of instructor.
Description: Consent of instructor. Problems associated with erosion control, drainage, flood protection and irrigation. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

BAE 6540 Prob Farm Power & Mach
Prerequisites: Consent of instructor.
Description: Literature review and analytical studies of selected farm power and machinery problems. Written report required. Offered for variable credit, 2-6 credit hours, maximum of 6 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

BAE 6580 Problems in Transport Processes
Prerequisites: Consent of instructor.
Description: Literature review and analysis of heat and mass transport and interval diffusion in biological materials. Transport phenomena at interfaces, thermal and cryogenic processing, drying, packed and fluidized bed systems. Thermal and moisture control processing affecting quality of food products. Written report required. Offered for variable credit, 2-6 credit hours, maximum of 6 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

BAE 6610 Adv Research & Study
Prerequisites: Approval by the student's advisory committee.
Description: Research and study at the doctoral level on the topic related to the student's doctoral program and field of interest. Offered for variable credit, 1-10 credit hours, maximum of 20 credit hours.
Credit hours: 1-10
Contact hours: Contact: 1-10 Other: 1-10
Levels: Graduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng

Business Administration (BADM)

BADM 1111 Business First Year Seminar
Prerequisites: Freshman standing only and Spears School of Business or undeclared student.
Description: Required of all first semester freshmen in the Spears School of Business. An orientation to the SSB and OSU, survival skills, and a study of the career opportunities and curriculum in the various business departments. Same course as UNIV 1111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 1121 Freshman Research Orientation
Prerequisites: Instructor permission required.
Description: The approaches and tools for business research will be discussed. The essential components of a research proposal will be reviewed, with examples of the approach needed for a successful proposal. Students will prepare a business research proposal in an area of interest.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 2010 Special Topics
Prerequisites: Consent of instructor.
Description: Special topics and independent study in business. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Business Admin

BADM 2011 Personal Management I: Decision-Making Skills
Description: Management concepts to help achieve success in students' personal lives, an examination of cognitive biases and decision-making strategies, recognizing traps and consumer rip-offs.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 2093 Study Abroad: Contemporary International Culture and Business Impacts
Description: A study of a country and region that will provide an integrated approach to the rich cultural, commercial, historical, technological, political, economic, and religious issues. The country's role as a political and economic power will be examined. Comparisons of technology, policies, and economics will be made, as well as investigating hurdles and synergies to doing business between that country and the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 2111 Career Planning for Business Success
Prerequisites: Spears School of Business major.
Description: The course covers the process required to land an internship and start a successful career. Students will identify interests, strengths, and values and recognize how to apply these to major/career selection. The course will also focus on determining professional career goals and building professional and personal networks.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 3021 Personal Management II: Influence Tactics
Description: An evaluation of the science of persuasion, influence tactics and practical strategies for managing interpersonal conflict. Also covers personal branding, upward and downward influence, issue selling in corporations and becoming a corporate entrepreneur. Previously offered as BADM 2021.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 3090 Study Abroad (G)
Prerequisites: Consent of the Study Abroad office and associate dean of the college.
Description: Participation in an OSU reciprocal exchange program. Offered for variable credit, 1-18 credit hours, maximum of 36 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Business Admin
General Education and other Course Attributes: International Dimension
Additional Fees: Study Abroad fee of $250 applies.

BADM 3101 Diversity Impacts on Business
Description: Diversity issues within major business theories. Through reading, observation, discussion, and writing, students will have their own perceptions of others challenged to better understand perspectives from different diverse populations. May not be used for degree credit with BADM 1103.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 3111 Professional Development for Business Success
Prerequisites: BADM 2111 and must be a Spears School of Business major.
Description: The course covers professional development essentials. Students will focus on growing their professional network, developing strong written and oral communication skills, and managing conflict, time, commitments, and teamwork.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 3113 Practical Business and Interpersonal Skills
Prerequisites: BADM 2111.
Description: This course develops skills in interpersonal communication, influence, networking, and other practical skills deemed critical for a successful business career. Interactive activities are designed for students to increase their problem-solving, resilience, confidence, and ability to interact with others. The course includes interactive discussions intended to increase students' ability to value different perspectives and learn to relate with diverse groups of people. May not be used for degree credit with MGMT 3133 or HTM 3113 or ORGL 3613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 3143 Business Career Development
Prerequisites: MGMT 3013.
Description: Topics include career planning, company research, interviewing techniques, networking and personal selling. Students develop strategies to develop their professionalism, confidence and sophistication. Previously offered as MGMT 3143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 4010 Business Projects
Prerequisites: Consent of instructor.
Description: Special advanced topics, projects and independent study in business. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Business Admin

BADM 4033 Global Challenges in Context
Prerequisites: Registration in the We are the World Global Trail or departmental permission.
Description: This experiential course immerses students in real-world projects that address pressing global issues. Collaborating with global partner institutions, students will tackle complex challenges in areas such as sustainability, public health, social justice, and economic development. This high-impact capstone aims to foster global citizenship, critical thinking, and collaborative problem-solving skills, preparing students to become leaders in addressing global challenges.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 4050 Business Colloquium
Prerequisites: Junior standing and consent of the instructor and the dean.
Description: Study of an interdepartmental and interdisciplinary nature of various important issues and aspects of the business and economic environment. Provides an intellectual challenge for the able student with a strong interest in scholarship. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Contact: 3-9 Other: 3-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Business Admin

BADM 4090 International Proficiency Field Experience for Business
Description: A cohort experience and study of a country and region that will ground the rich cultural, commercial, historical, technological, political, economic, and religious issues which have been explored through directed language and general education study. The country's role as a political and economic power will be examined. Comparisons of technology, policies, and economies will be made, as well as investigating hurdles and synergies to doing business between that country and the U.S. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Lecture: 3-6 Contact: 3-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 4093 Study Abroad: Business Impacts of Contemporary International Culture (G)
Prerequisites: Junior standing.
Description: A study of a country and region that will provide an integrated approach to the rich cultural, commercial, historical, technological, political, economic, and religious issues. The country's role as a political and economic power will be examined. Comparisons of technology, policies, and economies will be made, as well as investigating hurdles and synergies to doing business between that country and the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin
General Education and other Course Attributes: International Dimension

BADM 4123 Small Business Experience
Prerequisites: Junior standing, permission by instructor.
Description: This course provides hands-on experience involving all operations of running a small toffee business. Students will be involved in all aspects of the business including purchasing, production, market analysis, marketing, distribution, staffing & management, and accounting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 5013 Research Methods for Business
Prerequisites: STAT 2023, admission to MBA program or approval from MBA director.
Description: Role of Bayesian and inferential statistics in business research and management decision-making. Measurement, sealing, survey methods, and forecasting. Applications to marketing; managerial, human resource; financial and production planning; and other related business topics. Use of computers in statistical analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 5090 Study Abroad
Prerequisites: Graduate student standing. Consent of the Study Abroad Office and associate dean of the college.
Description: Participation in an OSU reciprocal exchange program. Offered for variable credit, 1-12 credit hours, maximum of 24 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin

BADM 5093 Study Abroad: Applied Business Studies
Description: A study of a country and region that will provide an integrated approach to the rich cultural, commercial, historical, technological, political, economic, and religious issues. The country's role as a political and economic power will be examined. Comparisons of technology, policies, and economies will be made, as well as investigating hurdles and synergies to doing business between that country and the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin
Additional Fees: SSB Study Abroad Tuition fee of $550 and Study Abroad fee of $250 apply.

BADM 5200 Selected Master of Business Administration Topics
Prerequisites: Admission to the MBA program.
Description: Selected topics dealing with business decision-making and contemporary business issues. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin
Additional Fees: SSB Study Abroad Tuition fee of $550 and Study Abroad fee of $250 apply.

BADM 5513 Fundamentals of Business Analytics
Prerequisites: Graduate standing in the SSB or permission from the MBA/MSIS/MSTM director or assistant director, or instructor.
Description: Introduction to a set of analytic tools, including exploratory and graphical techniques, variable associations, simple regression, multiple regression, decision trees, logistic regression, segmentation, RFM, design of experiments, and forecasting techniques, and use of tools for better business decisions.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Business Admin

BADM 5713 Analysis of the Multinational Firm
Prerequisites: Admission to MBA program or consent of MBA director.
Description: Identification and analysis of the managerial, financial, and market problems facing the multinational firm. Focus is empirical and stressing application of ecological and quantitative tools to the study of the multidimensional nature of the international business environment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 6000 Research and Thesis
Prerequisites: Approval of advisory committee.
Description: Offered for variable credit, 1-9 credit hours, maximum of 30 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin

BADM 6100 Seminar in Business Administration
Prerequisites: Consent of instructor.
Description: Interdisciplinary in nature; focused on research methodology. Offered for variable credit, 3-6 credit hours, maximum of 12 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin

BADM 6200 Instructional Leadership and Academic Curriculum in Business
Description: This course is designed to introduce the nature of education and the practices, ideas, and concepts that are fundamental to higher education course instruction. Topics to be discussed include: The Nature of Education, Purpose of Curriculum, Models on Instruction, Assessment Strategies, Epistemology, Pedagogy, Course Design, Instructional Sequencing. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 6343 Advanced Methods in MSIS Research
Prerequisites: Doctoral standing.
Description: Development of advanced methodological skills necessary to carry out research in the chosen area of study. Skills related to any one of the areas within the broad, interdisciplinary field of management science and information systems, such as management information systems, management science, telecommunications, and operations management. Same course as MGMT 6343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 6353 Advanced Methods in Management Research
Prerequisites: Doctoral student standing and consent of instructor.
Description: Course examines issues in theory building and development, strategies for collecting behavioral research. At conclusion of course, student should be able to: develop research questions, develop appropriate measures for constructs to be tested, and design research study using various methodologies. Same course as MSIS 6353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 6513 Org Science I: Micro Issues in Business
Prerequisites: Permission from the director of the PhD option in Executive Research.
Description: Provides an overview of the topics and research in behavior primarily at the individual and team level from different domains in business such as consumer behavior in marketing, organizational behavior in management, and behavioral research in accounting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 6523 Org Science II: Macro Issues in Business
Prerequisites: Permission from the director of the PhD option in Executive Research.
Description: Examines topics and research in business focusing particularly on the major theories applicable at the SBU, firm level and above. Topics include theories of globalizing business and national culture, agency theory, transaction cost theory, pricing theories, corporate governance and control, entry mode choice, and CEO compensation strategies. Each topic is introduced through a review of seminal theories which are then reinforced with current research that applies and/or tests these theories.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 6533 Creativity, Innovation and Leadership
Prerequisites: Permission from the director of the PhD option in Executive Research.
Description: Examines the creative process and the role of leadership in driving the creative process within organizations. Covers issues such as works of genius, everyday problem solving, the role of intelligence, innovative environments, creative analysis, creative leadership, consumer creativity, and co-creation. The foundation of each topic is theory-driven research with an occasional management practice perspective.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 6713 Theory Building and Scientific Research in Business
Prerequisites: Doctoral student status and consent of instructor.
Description: Examination of theory building and research methods from a business perspective. Understanding of theory and methods relevant to research in the business disciplines.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 6723 Dissertation Design
Prerequisites: Permission from the director of the PhD option in Executive Research.
Description: Introduces doctoral candidates to the dissertation-writing process. Helps students get organized, prepare a dissertation timeline, develop effective writing strategies, choose or refine a dissertation topic, write a dissertation proposal, and successfully defend a completed dissertation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

BADM 6913 Mixed Methods in Management Research
Prerequisites: Permission from the director of the PhD option in Executive Research.
Description: Introduces students to both quantitative and qualitative research methodologies, including designs for data collection and analysis. Addresses the integration of qualitative and quantitative design methodologies in studying organizational issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

Business Analytics (BAN)

BAN 5100 Professional Development in Business Analytics
Prerequisites: Admission to the MS in Business Analytics program or consent of director of MS in Business Analytics.
Description: Career and professional development of MS in Business Analytics students. A blend of guest speakers, projects, and exercises used to better prepare students for advanced business analytics careers. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Marketing

BAN 5400 Practicum in Business Analytics
Prerequisites: Consent of director of MS in Business Analytics and satisfactory completion of six hours of BAN 5000- or MKTG 5000-level courses.
Description: Professionally supervised experience in business analytics projects for which the student assumes a degree of professional responsibilitiy. Activities approved in advance by the instructor and must reflect graduate level analysis. May consist of full or part-time business analytics experience, on-campus or in industry, or both, either individually or as a responsible group member. Periodic reports, both oral and written, required as specified by the instructor. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Marketing

BAN 5511 Web Analytics and Digital Marketing
Prerequisites: Admission in MS in Business Analytics or consent of director of MS in Business Analytics or consent by instructor.
Description: Learn how to use web analytics tools and techniques to improve digital marketing.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

BAN 5521 GIS Applications in Marketing Analytics
Prerequisites: Admission in MS in Business Analytics or consent of director of MS in Business Analytics or consent by instructor.
Description: Learn how to use geographical information systems (GIS) as a methodological tool and analyze spatial data to make better marketing decisions.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

BAN 5530 Consulting in Marketing Analytics
Prerequisites: Admission in MS in Business Analytics or consent of director of MS in Business Analytics or consent by instructor.
Description: Learn how analytics consultants must communicate with clients to establish relationships, build trust, propose solutions, handle objections and otherwise effectively manage the relationship aspect of the engagement. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

BAN 5541 Using R in Marketing Analytics
Prerequisites: Admission in MS in Business Analytics or consent of director of MS in Business Analytics or consent by instructor.
Description: Learn how to use the R computing environment (and language) for analytics applications. The focus of the course will be on the usage of R and various R packages for analytics applications and not the theory or discussion behind various analytics techniques.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

BAN 5551 Optimization Applications in Marketing Analytics
Prerequisites: Admission in MS in Business Analytics or consent of director of MS in Business Analytics or consent by instructor.
Description: This course provides an introduction to practical applications of mathematical programming/operations research using SAS/OR.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

BAN 5560 Business Analytics Research and Communications
Prerequisites: MS BAN or MS BADS or consent of instructor.
Description: To be effective in today's business environment, an analyst needs to be able to translate business data into information to make better decisions. An effective analyst must also be able to communicate findings in verbal and written forms to a wide variety of audiences. This course introduces interactive techniques to learn and master multiple communication styles used in business analytics and research. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

BAN 5561 Customer Lifetime Value Models in Marketing
Prerequisites: Admission into MSBAN program or, approval from MSBAN program director or, consent of instructor.
Description: The course will introduce mathematical, modeling, financial, and business/marketing concepts associated with implementing Customer Lifetime Value (CLV). Topics will cover the financial concepts and mathematical formulae for CLV calculations including common approaches to building the statistical/predictive models required for projecting future value. In addition, interpretation of CLV output and best practices for using CLV to improve business and marketing strategies will be discussed.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

BAN 5563 Strategic Marketing and Business Analytics
Prerequisites: MS BAN or MS BADS or MBA or GCRT BADS or consent of instructor.
Description: The course is based on an international business stimulation where students work in groups to develop a business from scratch and manage it globally across multiple continents. It is designed to broaden students' understanding of international target market selection and positioning of brands in the global market, value creation in product design, cash flow planning, profitability analysis, production planning and inventory management by analyzing marketing and management data. The overreaching goal of this course is for students to learn how to balance strategic versus tactical decisions by analyzing marketing and management data from the simulation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

BAN 5570 Business Analytics Research and Communications II
Prerequisites: BAN 5560
Description: To be effective in today's business environment, an analyst needs to be able to translate business data into information to make better decisions. An effective analyst must also be able to do independent research and communicate findings in verbal and written forms to a wide variety of audiences. The course addresses how to do research and communicate findings from research. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

BAN 5733 Descriptive Business Analytics
Prerequisites: MS BAN or MS BADS or GCRT BADS or consent of instructor.
Description: Learn how to describe and analyze business data using visualization and statistical tools. Topic coverage will include different types of graphs and plots, cross-tabs, variable associations, regression, ANOVA and other related models. An overview of basic probability concepts and statistical sampling techniques will also be provided. This course will primarily use SAS® Analytics platform to analyze data. Students may not take both MKTG 5733 or MKTG 5983 and BAN 5733 for degree credit.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

BAN 5743 Predictive Business Analytics
Prerequisites: BAN 5733 or consent by instructor.
Description: Learn how to use predictive analytic tools such as logistic regression, neural networks, decision trees and other classification and prediction models to generate deeper business insights and to improve business decision making. This course will primarily use SAS® Analytics platform to analyze data. Students may not take both MKTG 5963 or MKTG 5743 and BAN 5743 for degree credit.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing

BAN 5753 Advanced Business Analytics
Prerequisites: BAN 5743 and MS BAN or MS BADS or GCRT BADS or consent by instructor.
Description: Learn how to use advanced modeling techniques such as Self Organizing Maps (SOM) and Kohonen Networks, two-stage models, survival models, credit scoring models, time series forecasting models, advanced text analytics etc. to improve business decision making. This course will primarily use SAS® Analytics platform to analyze data. Students may not take both MKTG 5883 and BAN 5753 for degree credit.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

BAN 5763 Advanced Marketing Research Analytics
Prerequisites: BAN 5753 or consent by instructor.
Description: Learn how to properly use various multivariate data analysis techniques including multiple regression, MANOVA, Discriminant analysis, Clustering, MDS and Conjoint Analysis. Students may not take both MKTG 6413 and BAN 5763 for degree credit.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing

BAN 5900 Advanced Practicum in Business Analytics
Prerequisites: MS BAN or MS BADS and consent of instructor.
Description: Professionally supervised experience in advanced business analytics projects for which the student assumes a degree of professional responsibility. Activities approved in advance by the instructor and must reflect advanced graduate level analysis. May consist of full or part-time advanced business analytics experience, on-campus or in industry, or both, either individually or as a responsible group member. Periodic reports, both oral and written, required as specified by the instructor. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Marketing
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

Business Communications (BCOM)

BCOM 3113 Written Communication
Prerequisites: 50 credit hours.
Description: Analysis of business communication problems in terms of generally accepted communication principles. Practice in neutral and positive, negative and persuasive written messages. Practice writing a proposal and a business report. Students may not take both BCOM 3113 and BCOM 3443 for degree credit. May not be taken for degree credit with ORGL 3113. Previously offered as GENA 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

BCOM 3223 Oral Communication
Prerequisites: 50 credit hours.
Description: Prepares students for oral and written communication in the workplace. Emphasis on planning and presenting of ideas to audiences as an individual and as a member of a team. Grammar skills and principles of effective communication will be explored. Previously offered as GENA 3223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

BCOM 3333 Advanced Business Communication
Prerequisites: BCOM 3113 and 6 hours of English.
Description: An advanced written and oral business communication class which focuses on the fundamentals of writing and presenting business reports. The course will include coverage of mechanics, content, structure, and research of business reports as well as Power Point presentation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

BCOM 3443 Business Communication for International Students
Prerequisites: 50 credit hours.
Description: Analysis of business communication problems in terms of generally accepted communication principles. Practice in written messages, a proposal, and a business report. This course is specifically designed for students who learned English as a second language. Students may not take both BCOM 3113 and BCOM 3443 for degree credit.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

BCOM 5113 Seminar in Administrative Communication
Description: Understanding and application of valid and relevant communication principles and theories. Designed to develop management-level personnel who can effectively and efficiently use oral and written communications as administrative tools to organizational functioning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

BCOM 5210 Business Communication Applications
Description: Application of communication techniques to the business setting. Interpersonal communication skills necessary for the manager in a business organization. Problems and applications within the modern business setting. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Management

Business Honors (BHON)

BHON 4053 Critical Issues in Global Business
Prerequisites: Junior standing, admission to the Honors Program.
Description: Current critical issues facing business in a global environment. Social, political, economic, and technological sectors of the environment. Framework of study on geographical and political regions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin
General Education and other Course Attributes: Honors Credit

BHON 4063 Topics in Contemporary Business
Prerequisites: Junior standing, admission to the Honors Program.
Description: Topics of interest in the contemporary business and economic environment. The social role of the corporation; U.S. competitiveness and business and environmental issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin
General Education and other Course Attributes: Honors Credit

BHON 4073 Literature in Business
Prerequisites: Junior standing, admission to the Honors Program.
Description: Foundations of American business through selected literary masterpieces.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Business Admin
General Education and other Course Attributes: Honors Credit

BHON 4990 Business Honors Thesis
Prerequisites: Honors Program participation, senior standing, college approval.
Description: A guided reading and research program ending with an honors thesis under the direction of a faculty member, with second faculty reader and oral examination. Required for graduation with college honors in business. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Business Admin
General Education and other Course Attributes: Honors Credit

Chemical Engineering (CHE)

CHE 1112 Introduction to the Engineering of Coffee (LN)
Description: A non-mathematical introduction to the engineering aspects of roasting and brewing coffee. Simple engineering concepts are used to study methods for roasting and processing of coffee. The course will investigate techniques for brewing coffee such as a drip coffee, pour-over, French press, AeroPress, and espresso. Laboratory experiences focus on roasting and brewing coffee to teach introductory engineering concepts to both engineers and non-engineers.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Chemical Engineering
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

CHE 2023 Introduction to Chemical Engineering Thermodynamics
Prerequisites: CHEM 1515, MATH 2144, and PHYS 2014 with a grade of "C" or better.
Description: Systems approach to modeling industrial process, application of first and second laws, properties of substances, separate strategies using thermodynamic principles, and power generation cycles. May not be used for degree credit with ENSC 2213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 2033 Introduction to Chemical Process Engineering
Prerequisites: CHEM 1515, (CHE 2023 or ENSC 2213), ENGR 1412, ENGL 1113, ENGR 1111 with grades of "C" or better and concurrent enrollment in MATH 2233 or MATH 3263.
Description: Application of mathematics and scientific principles to solving chemical engineering problems. Simple material and energy balances applied to process design. The nature and application of unit operations and unit processes to the development of chemical processes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3 Other: 0
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Chemical Engineering

CHE 2581 Chemical Engineering Seminar I
Prerequisites: CHE majors.
Description: Through guest lectures and home assignments, preparation and planning for a CHE career and success in the CHE curriculum. Professional growth topics oriented to students in the sophomore-level courses.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 3013 Fluid Flow and Heat Transfer
Prerequisites: CHE 2033, (CHEM 3112 & CHEM 3153) OR (BIOC 3653 & BIOC 3723), MATH 2233 OR MATH 3263, and ENSC 3233 with grades of "C" or better.
Description: Development and application of phenomenological and empirical models to the design and analysis of fluid processing and heat transfer unit operations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 3113 Separation Processes
Prerequisites: CHE 3013, CHE 3333, CHE 3473, ENSC 3231, and CHE 3543 with grades of "C" or better.
Description: Development and application of phenomenological and empirical models to the design and analysis of mass transfer and separations unit operations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 3123 Chemical Reaction Engineering
Prerequisites: CHE 3013, CHE 3333, CHE 3473, ENSC 3231, and CHE 3543 with grades of "C" or better.
Description: Principles of chemical kinetics rate concepts and data treatment. Elements of reactor design principles for homogeneous systems; introduction to heterogeneous systems. Course previously offered as CHE 4473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 3202 Interdisciplinary Design and Build for Chemical Systems I
Prerequisites: CEAT major or consent of instructor.
Description: Interdisciplinary design course that provides independent work experience, professional development, and assigned design-build problems.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 3211 Interdisciplinary Design and Build for Chemical Systems II
Prerequisites: CEAT major and CHE 3202 or consent of instructor.
Description: Continuation of CHE 3202. Interdisciplinary design course that provides independent work experience, professional development, and assigned design-build problems.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 3333 Introduction to Transport Phenomena
Prerequisites: CHE 2033, (CHEM 3112 & CHEM 3153) OR (BIOC 3653 & BIOC 3723), MATH 2233 OR MATH 3263, and ENSC 3233 with grades of "C" or better.
Description: Molecular concepts of mass, momentum, and thermal energy diffusion. Theories and correlations for transport properties of viscosity, thermal conductivity, and diffusivity. Shell balance techniques to derive differential equations of change. Application of ODEs to simple transport phenomena problems. Turbulent flow analysis. Use of CFD software for analysis. Course previously offered as CHE 4333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 3473 Chemical Engineering Thermodynamics
Prerequisites: CHE 2033, (CHEM 3112 & CHEM 3153) OR (BIOC 3653 & BIOC 3723), MATH 2233 OR MATH 3263, and ENSC 3233 with grades of "C" or better.
Description: Application of thermodynamics to chemical process calculations. Behavior of fluids, including estimation of properties by generalized methods. Study of chemical thermodynamics, including heats of reaction, chemical reaction, and phase equilibria.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 3543 Introduction to Chemical Process Analytics
Prerequisites: CHE 2033, (CHEM 3112 & CHEM 3153) OR (BIOC 3653 & BIOC 3723), MATH 2233 OR MATH 3263, and ENSC 3233 with grades of "C" or better..
Description: Data generation and analysis methods from chemical processes and experiments. Model development using programming. Data interpretation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 3581 Chemical Engineering Seminar II
Prerequisites: CHE 2033, CHE 2581, ENGR 1111.
Description: Through guest lectures and home assignments, preparation and planning for a CHE career and success in the CHE curriculum. Professional growth topics oriented to students in the junior-level CHE courses.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4002 Chemical Engineering Laboratory I
Prerequisites: CHE 3013, CHE 3333, CHE 3473, ENSC 3231, CHE 3543 with grades of "C" or better.
Description: Application of CHE fundamentals and unit operation principles to the analysis of bench and pilot-scale equipment. Primarily fluid processing and heat exchange. Design of experiments on non-ideal units to generate credible data useful for validation of principles and for engineering decisions. Interpretation of experimental data and presentation of results.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Chemical Engineering

CHE 4073 Introduction to Tissue Engineering
Prerequisites: Senior standing or higher and ENSC 3233 and ENSC 3313 and MATH 2153; or by consent of instructor.
Description: An overview of the principles of tissue engineering and regenerative medicine, including a general understanding of tissue growth and development, and an investigation of the engineering principles needed to design tissues and organs. May not be used for degree credit with CHE 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4112 Chemical Engineering Laboratory II
Prerequisites: CHE 3113, CHE 3123, CHE 4002 with grades of "C" or better.
Description: A continuation of CHE 4002. Primary reaction and mass transfer processes.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Chemical Engineering

CHE 4124 Chemical Engineering Design I
Prerequisites: CHE 3113, CHE 3123, CHE 4002 with grades of "C" or better.
Description: Economic analysis of process plants and systems of equipment; methods for estimating plant investment requirements and operating costs; economic evaluation and optimal design of chemical process systems; basic equipment and process design calculations.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Chemical Engineering

CHE 4133 Introduction to Catalysis and Photocatalysis
Prerequisites: Senior standing or higher and CHE 3123 or consent of instructor.
Description: Molecular level insight into catalysis and photocatalysis from chemistry and chemical engineering. Includes homogeneous catalysis, heterogeneous catalysis, molecular photocatalysis, and photocatalysis on metals and metal oxides. Rational design of catalysts using first-principle (e.g., density functional theory) calculations covered. Advancements in the experimental and computational catalysis fields to convert renewable natural resources such as solar light and cellulosic biomass into electricity, fuels, valuable chemicals and pharmaceuticals. May not be used for degree credit with CHE 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4183 Drug Delivery
Prerequisites: Senior standing or higher; or by consent of instructor.
Description: The future of medicine seems focused on the technologies for drug delivery and on large, macromolecular drugs such as genes and proteins. This course is intended to give you an overview of macromolecular drugs (i.e., genes and proteins) and the methods for their delivery. May not be used for degree credit with CHE 5183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4224 Chemical Engineering Design II
Prerequisites: CHE 4112 and CHE 4124.
Description: A continuation of CHE 4124. Economic analysis of process plants and equipment. Design of chemical processing equipment and chemical plants. Application of computer techniques to chemical engineering design.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Chemical Engineering

CHE 4283 Bioprocess Engineering
Prerequisites: CHE 3123 (or instructor consent).
Description: Application of fundamental engineering principles to biochemical and biological processes. Introduction to cellular processes, fermentation technology, biological mass transfer and kinetics, bioreactor design and scale-up and downstream processing. Same course as BAE 4283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4293 Biomedical Engineering
Prerequisites: ENSC 3233, (CHE 2023 or ENSC 2213); or consent of instructor.
Description: Introduction to engineering principles applied to biomedical applications. Biomaterials, drug delivery, artificial organs, transport in biological systems, tissue engineering and modeling of biological systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4303 Introduction to Science and Engineering Research
Prerequisites: Senior level or by consent of instructor.
Description: This course is designed to expose senior level undergraduate students to principles and practice common to research in science and engineering, and accelerate student development towards independent and creative research prowess upon entering a graduate program. May not be used for degree credit with CHE 5303 or CHE 5302. Previously offered as CHE 4302.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4323 Electrochemical Engineering
Prerequisites: ENSC 2213 or CHE 2023, ENSC 3233; or consent of instructor.
Description: An introduction to the fundamental principles of electrochemistry and its applications in different engineering systems for energy, chemical, biomedical, and electronics industries. May not be used for degree credit with CHE 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4343 Environmental Engineering
Prerequisites: CHE 3123 or consent of instructor.
Description: Application of science and engineering principles to minimize the adverse effects of human activities on the environment. National and state environmental regulations. Predictive movement and fate of chemicals in the geospheres. Multi-media pollution assessment, analysis and control. Consideration of safety, health and environmental issues from a process standpoint.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4483 Introduction to Spectroscopy in Engineering Research, Development, and Practice
Prerequisites: Senior standing or higher; or by consent of instructor.
Description: This course will introduce the fundamentals and practice of spectroscopic methods that the practicing engineer will most likely encounter in fields like agriculture, aerospace, food science, chemical conversion and refining, catalysis, medicine, petroleum engineering, polymer development and production, materials science, plastics reclamation and recycling, on-line process control, pharmaceutical development, and others. May not be used for degree credit with CHE 5483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4493 Introduction to Molecular Modeling and Simulation
Prerequisites: Senior standing or higher and any one of the following courses – CHE 3473, CHEM 3433, CHEM 3553, MAE 3223, MAE 5683, MAE 5693, BIOC 3223 or consent of instructor.
Description: Theory of statistical mechanics and its application to computing thermodynamic, transport and phase equilibria properties of fluids. Modeling of matter at molecular level and atomistic simulation methods such as Monte Carlo and molecular dynamics. Quantum calculation of thermodynamics for industrially relevant reactions. Software used: Cassandra, Gromacs, LAMMPS, and Gaussian. May not be used for degree credit with CHE 5493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4523 Introduction to Colloid Processing
Prerequisites: MATH 2153 and CHEM 1515.
Description: The physics and chemistry governing the behavior of microscopic particles in dilute and concentrated suspensions. Interparticle interaction influence on viscosity, viscoelasticity, yield stress, and shear thinning. Practical applications of colloids principles in industrial practice. No credit for students with credit in CHE 5523. Same course as MSE 4523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4533 Colloidal and Interfacial Phenomena
Prerequisites: Senior standing.
Description: This course surveys applications and fundamental aspects of colloidal and interfacial phenomena, industrial applications include pharmaceuticals, energy, agriculture, and food/beverage, and will explore systems such as surfactants, polymers, emulsions, dispersions, foams, and particles at interfaces. The course includes explorations of emulsion stability mechanisms, interparticle interactions, surfactant behavior, and interfacial stability mechanisms. Experimental techniques used to characterize these systems such as interfacial tenslometry and dispersion sizing will be discussed. May not be used for degree credit with CHE 5533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4543 Machine Learning for Chemical Processes
Prerequisites: MATH 2144, CHE 3543, or Consent of Instructor.
Description: The emphasis of the course will be to utilize concepts from statistics, calculus, and linear algebra to develop machine learning models applicable to a wide range of problems in engineering, natural and social sciences, and finance. Special emphasis will be given to the application of methods in the chemical engineering domain. However, students from other disciplines will find the methods broadly applicable to their areas of interest. Homework assignments and project will provide opportunities to apply the knowledge in a broader context. May not be used for degree credit with CHE 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4581 Chemical Engineering Seminar III
Prerequisites: Senior standing, CHE 3581.
Description: Through guest lectures and home assignments, preparation and planning for a ChE career and success in the ChE curriculum. Professional growth topics oriented to students in the senior-level ChE courses.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4603 Introduction to Membrane Separations
Prerequisites: Senior standing or higher and CHE 3113 or consent of instructor.
Description: Basic principles of membrane technology: membrane synthesis processes and molecular separation mechanisms for different types of membranes. General overview of many different membrane processes. Basic transport equations and fundamental concepts with examples and industrial applications. Includes a project/discussion for a membrane reactor model. May not be used for degree credit with CHE 5603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4753 Introduction to Applied Numerical Computing for Scientists and Engineers
Prerequisites: Senior standing or higher, and MATH 2233 or MATH 3263, and knowledge of programming, or consent of instructor.
Description: Practical software tools for computational problem solving in science and engineering: version control (e.g., Git), mathematical typesetting (e.g., LaTeX), graphical user interfaces, and high level program languages with libraries of solvers and visualization tools (e.g., Python and MATLAB). Application of numerical computing methods to solve systems of differential and algebraic equations and to estimate model parameters using optimization. May not be used for degree credit with CHE 5753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4773 Introduction to Computational Fluid-Particle Dynamics
Prerequisites: Senior standing or higher and CHE 3333 or consent of instructor.
Description: Computational fluid-particle dynamics (CFPD) modeling strategies and simulation of multiphase flow transport phenomena such as particle tracking, deposition, reaction, and erosion. Detailed flow visualization using multiphase flow models on ANSYS CFX and Fluent platforms. Application of numerical techniques to simulate processes defined by first-principles. Application of CFPD for drug formulation optimization, lung aerosol dynamics, separation processes, reactions in stirred tanks and plug flow reactors. May not be used for degree credit with CHE 5773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4783 Nanomaterial Synthesis and Characterization
Prerequisites: Senior standing or consent of instructor.
Description: Exposing students to the principles and concepts of nanoscience and nanotechnology with focus on nanomaterial synthesis and characterization, and accelerating student development towards an effective literature review on a selected topic. May not be used for degree credit with CHE 5783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4843 Chemical Process Instrumentation and Control
Prerequisites: ENSC 2613, ENGR 2421 with grades of "C" or better, CHE 4112 and CHE 4124.
Description: Process instrumentation for measurement and control. Process dynamics and modeling. Linearization. Classical control system analysis and design. Tuning. Communication through block diagrams and P&IDs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 4880 Special Topics
Prerequisites: Senior standing.
Description: Training in independent work, study of relevant literature, and experimental investigation of an assigned problem. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 4990 Special Problems
Prerequisites: Senior standing.
Description: Training in independent work, study of relevant literature, and experimental investigation of an assigned problem. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 5000 Master's Thesis
Prerequisites: Approval of major professor.
Description: Methods used in research and thesis writing. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 5030 Professional Practice
Prerequisites: Senior standing and consent of instructor.
Description: Application of chemical engineering principles to the solution of real-life engineering problems in an actual or simulated industrial environment. Includes application of design and testing procedures, economic evaluation and reporting on one or more assigned projects. Offered for variable credit, 2-6 credit hours, maximum of 8 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 5073 Tissue Engineering
Prerequisites: Graduate standing and permission of instructor.
Description: Tissue engineering (TE) and the material strategy for different tissue constructs in bone TE, liver TE, neural TE, intestine TE, etc. will be discussed in this course. Same as MSE 5073. May not be used for degree credit with CHE 4703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5110 Special Topics in Chemical Engineering
Prerequisites: Consent of instructor.
Description: Small group and individual projects in unit operations, unit procedures, chemical kinetics, computer applications, process modeling, or any of a wide range of chemical engineering topics. May be repeated for credit if subject matter varies. Offered for variable credit, 2-3 credit hours, maximum of 6 credit hours.
Credit hours: 2-3
Contact hours: Contact: 2-3 Other: 2-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 5123 Advanced Chemical Reaction Engineering
Prerequisites: CHE 4473.
Description: Advanced principles and applications of chemical kinetics in catalysis, heterogeneous systems, non-ideal reactions, polymerization, and biological reactions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5133 Catalysis and Photocatalysis
Prerequisites: Graduate standing or CHE 3123 or consent of instructor.
Description: Molecular level insight into catalysis and photocatalysis from the basics of chemistry and chemical engineering. Topics covered include homogeneous catalysis, heterogeneous catalysis, molecular photocatalysis, and photocatalysis on metals and metal oxides. The rational design of catalysts using first-principle (e.g., density functional theory) calculations is covered. Advancements made in the experimental and computational catalysis fields to convert renewable natural resources such as solar light and cellulosic biomass into electricity, fuels, valuable chemicals and pharmaceuticals. May not be used for degree credit with CHE 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5183 Drug Delivery
Prerequisites: Graduate standing or consent of instructor.
Description: The future of medicine seems focused on the technologies for drug delivery and on large, macromolecular drugs such as genes and proteins. This course is intended to give you an overview of macromolecular drugs (i.e., genes and proteins) and the methods for their delivery. May not be used for degree credit with CHE 4183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5213 Advanced Transport Phenomena
Prerequisites: CHE 3333 (or equivalent), or graduate student standing in the School of Chemical Engineering, or a closely related, calculus-based STEM discipline, or consent of instructor.
Description: Mechanisms and modeling of mass, momentum and heat transport with an emphasis on chemical, petroleum, and biomedical engineering applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5233 Bioseparations
Prerequisites: BAE 3013 or CHE 3013.
Description: Study of separations important in food and biochemical engineering such as leaching, extraction, expression, absorption, ion exchange, filtration, centrifugation, membrane separation, and chromatographic separations. Course available online only through AG*IDEA consortium.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5263 Advanced Biomaterials Science and Engineering
Prerequisites: Graduate standing or consent of instructor.
Description: Engineering issue that are implicit in understanding the interactions of living tissue and processed materials will be introduced. Emphasis is on identifying the processes in which cells interact with surfaces and particulate matter and the outcome of these interactions. Highlighted biological responses will include inflammation and coagulation. Also, biomaterial issues related to drug delivery and tissue engineering will be discussed. Same course as MAE 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5273 Basic Physiology and Physiological System Analysis for Engineers
Prerequisites: Graduate standing or consent of instructor.
Description: The goals of this class are: 1) to introduce the basic physiology concepts used widely in biomedical engineering research; 2) to introduce and develop engineering concepts and approaches for quantitative analysis of physiological systems. Engineering principles will be applied to study mechanical properties of various tissue and organ systems under normal and diseased conditions. Knowledge obtained from this class can help engineers to apply engineering principles to the design and development of medical devices for disease treatments. Same course as MAE 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5283 Advanced Bioprocess Engineering
Prerequisites: Consent of instructor.
Description: Application of fundamental engineering principles to biochemical and biological processes. Introduction to cellular processes, fermentation technology, biological mass transfer and kinetics, bioreactor design and scale-up, and downstream processing. Same course as BAE 5283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5293 Advanced Biomedical Engineering
Prerequisites: Consent of instructor.
Description: Principles and engineering analysis of biomedical processes. Artificial organs, biomaterials, tissue engineering, transport in biological systems, biomedical imaging and drug delivery systems. Same course as MAE 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5303 Introduction to Science and Engineering Research
Prerequisites: Graduate level or by consent of instructor.
Description: This course is designed to expose new graduate students to principles and practice common to research in science and engineering, and accelerate student development towards independent and creative research prowess. May not be used for degree credit with CHE 4302, CHE 4303, and PETE 6813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5323 Electrochemical Engineering
Prerequisites: Graduate standing.
Description: An introduction to the fundamental principles of electrochemistry and its applications in different engineering systems for energy, chemical, biomedical, and electronics industries. May not be used for degree credit with CHE 4323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5343 Advanced Environmental Engineering
Prerequisites: Consent of instructor.
Description: Science and engineering principles to minimize the adverse effects of human activities on the environment. National and state regulations. Predictive movement and fate of chemicals in the geospheres. Multi-media pollution assessment, analysis, and control. Consideration of safety, health, and environment issues from a process standpoint. Special project required. Credit not allowed if CHE 4343 was taken.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5373 Process Simulation
Prerequisites: CHE 5843 or concurrent enrollment or with professor's consent.
Description: Computer-aided process synthesis, simulation, analysis and optimization. Systematic tools for developing and screening potential chemical process flow sheets. Use of commercial process simulators to aid in evaluating process designs. Practical problems will be used as examples and case studies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5483 Spectroscopy in Engineering Research, Development, and Practice
Prerequisites: Graduate standing or consent of instructor.
Description: This course will introduce the fundamentals and practice of spectroscopic methods that the practicing engineer will most likely encounter infields like agriculture, aerospace, food science, chemical conversion and refining, catalysis, medicine, petroleum engineering, polymer development and production. materials science, plastics reclamation and recycling, on-line process control, pharmaceutical development, and others, May not be used for degree credit with CHE 4483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5493 Molecular Modeling and Simulation
Prerequisites: Graduate standing and any one of the following courses: CHE 3473, CHEM 3433, CHEM 3553, MAE 3223, MAE 5683, MAE 5693, BIOC 3224 or consent of instructor.
Description: Theory of statistical mechanics and its application to computing thermodynamic, transport and phase equilibria properties of fluids. Modeling of matter at molecular level and atomistic simulation methods such as Monte Carlo and molecular dynamics. Quantum calculation of thermodynamics for industrially relevant reactions. Software used: Cassandra, Gromacs, LAMMPS, and Gaussian. May not be used for degree credit with CHE 4493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5523 Colloid Processing
Prerequisites: Graduate standing in engineering, physics, or chemistry or consent of instructor.
Description: The physics and chemistry governing the behavior of microscopic particles in dilute and concentrated suspensions. Interparticle interaction influence on viscosity, viscoelasticity, yield stress, and shear thinning. Practical application of colloids principles in industrial practice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5533 Colloidal and Interfacial Phenomena
Prerequisites: Consent of instructor.
Description: Individual report topics in chemical engineering involving operations, processes, equipment, experiments, literature search, theory, computer use or combinations of these. May not be used for degree credit with CHE 4533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5543 Machine Learning for Chemical Processes
Prerequisites: Graduate standing, MATH 2144, and CHE 3543; or Consent of Instructor.
Description: The emphasis of the course will be to utilize concepts from statistics, calculus, and linear algebra to develop machine learning models applicable to a wide range of problems in engineering, natural and social sciences, and finance. Special emphasis will be given to the application of methods in the chemical engineering domain. However, students from other disciplines will find the methods broadly applicable to their areas of interest. May not be used for degree credit with CHE 4543. Previously offered as CHE 5990.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5603 Membrane Separations
Prerequisites: Graduate standing and CHE 3113 or consent of instructor.
Description: Basic principles of membrane technology: membrane synthesis processes and molecular separation mechanisms for different types of membranes. General overview of many different membrane processes. Basic transport equations and fundamental concepts with examples and industrial applications. Includes a project/discussion for a membrane reactor model. May not be used for degree credit with CHE 4603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5633 Stagewise Operations
Description: Stagewise separation in binary and multicomponent systems. Development of theoretical techniques with application to typical situations in vapor-liquid, liquid-liquid and solid-liquid systems. Use of digital and analog techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5703 Optimization Applications
Prerequisites: Graduate standing.
Description: A survey of various methods of unconstrained and constrained linear and non-linear optimization. Applications of these methodologies using hand-worked examples and available software packages. Intended for engineering and science students. Same course as ECEN 5703, IEM 5023 & MAE 5703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5723 Plasmonic Photocatalysis
Prerequisites: CHE 5123; or by consent of instructor.
Description: The field of plasmonic photocatalysis grew tremendously in the last decade. In this course, the current state of the art plasmonic photocatalysis are reviewed through the rigorous collection of literature. The advantages of the visible-light-driven plasmonic photocatalysis over the conventional thermal energy-driven heterogeneous catalysis will be discussed. The fundamental insight into photocatalytic mechanisms by which the charge carriers (electrons and holes) are formed and transferred to adsorbates to drive chemical transformations on the surface of plasmonic nanocatalysts will also be discussed. The computational methods used to predict and understand the photocatalytic activity and selectivity in plasmonic photocatalysis will also be reviewed. Finally, the current challenges, new opportunities, and future outlook for plasmonic photocatalysis will be presented.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5733 Neural Networks
Prerequisites: Graduate standing.
Description: Introduction to mathematical analysis of networks and learning rules and on the application of neural networks to certain engineering problems, image and signal processing and control systems. Same course as ECEN 5733 & MAE 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5743 Chemical Engineering Process Modeling
Description: Chemical engineering systems and process models. Analytical and numerical methods of solution of resulting equations with computer methods in a chemical engineering context.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5753 Applied Numerical Computing for Scientists and Engineers
Prerequisites: Graduate standing, and MATH 2233 or MATH 3263, and knowledge of programming, or consent of instructor.
Description: Practical software tools for computational problem solving in science and engineering: version control (e.g., Git), mathematical typesetting (e.g., LaTeX), graphical user interfaces, and high level program languages with libraries of solvers and visualization tools (e.g., Python and MATLAB). Application of numerical computing methods to solve systems of differential and algebraic equations and to estimate model parameters using optimization. May not be used for degree credit with CHE 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5773 Computational Fluid-Particle Dynamics
Prerequisites: Graduate standing and CHE 3333 or consent of instructor.
Description: Computational fluid-particle dynamics (CFPD) modeling strategies and simulation of multiphase flow transport phenomena such as particle tracking, deposition, reaction, and erosion. Detailed flow visualization using multiphase flow models on ANSYS CFX and Fluent platforms. Application of numerical techniques to simulate processes defined by first-principles. Application of CFPD for drug formulation optimization, lung aerosol dynamics, separation processes, reactions in stirred tanks and plug flow reactors. May not be used for degree credit with CHE 4773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5783 Nanomaterial Synthesis and Characterization
Description: Exposing students to the principles and concepts of nanoscience and nanotechnology with focus on nanomaterial synthesis and characterization, and accelerating student development towards an effective literature review to come up with novel idea on a selected topic. May not be used for degree credit with CHE 4783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5843 Principles of Chemical Engineering Thermodynamics
Description: Principles of thermodynamics. Properties of fluids and prediction of thermodynamic properties. Phase and chemical equilibrium. Thermodynamics in unit operations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5850 Advanced Process Control Laboratory
Prerequisites: Graduate standing and permission of instructor.
Description: Instrumentation systems and control strategies on pilot-scale chemical processes. Calibration, filtering, dynamic modeling, tuning, advanced control, and method evaluation. Students will learn industrial practices and cope with many non-idealities. Offered for variable credit, 2-3 credit hours, maximum of 6 credit hours.
Credit hours: 2-3
Contact hours: Lecture: 1 Lab: 2-4 Contact: 3-5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Chemical Engineering

CHE 5853 Advanced Chemical Process Control
Prerequisites: CHE 4843 or equivalent.
Description: General concepts and approaches of model-based control. Studies in the application of process-model-based control and model-predictive control on multivariable, nonlinear, nonstationary, noisy processes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5873 Air Pollution Control Engineering
Description: Causes, effects and control of atmosphere pollution. Same course as CIVE 5873.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 5880 Special Problems
Prerequisites: Consent of instructor.
Description: Individual report topics in chemical engineering involving operations, processes, equipment, experiments, literature search, theory, computer use or combinations of these. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 5990 Special Problems
Prerequisites: Consent of instructor.
Description: Individual report topics in chemical engineering involving operations, processes, equipment, experiments, literature search, theory, computer use or combinations of these. Offered for variable credit, 1-4 credit hours, maximum of 9 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 6000 Doctoral Thesis
Prerequisites: Consent of major professor.
Description: The doctoral candidate registers for a minimum of 1 semester credit hour to a maximum of 15 semester credit hours in each semester during which dissertation work is in process. Methods used in research and thesis writing. An original investigation of a problem in chemical engineering and its report in a dissertation. Offered for variable credit, 1-15 credit hours, maximum of 54 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 6010 Chemical Engineering Seminar
Prerequisites: Consent of major professor.
Description: Advanced research and development topics. Offered for variable credit, 1 credit hour, maximum of 10 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 6223 Advanced Chemical Engineering Thermodynamics
Prerequisites: CHE 5843.
Description: Phase equilibrium in multicomponent systems. Irreversible processes. Properties of fluids and the prediction of properties by statistical methods. Application of thermodynamics to unit operations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

CHE 6440 Advanced Topics in Chemical Engineering
Description: Topics in chemical engineering unit operations in design. Advanced mathematical techniques in chemical engineering problems. May be repeated for credit if subject matter varies. Offered for variable credit, 3-6 credit hours, maximum of 9 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

CHE 6703 Research Methods in Chemical Engineering
Prerequisites: MS or PhD candidacy in chemical engineering or consent of instructor.
Description: Methods and skills required to successfully conduct chemical engineering research projects. Maintaining research records, experiment design, data validation, results presentation and research ethics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

Chemistry (CHEM)

CHEM 1014 Chemistry In Civilization (LN)
Description: A survey course presenting the concepts and principles of chemistry for students outside the health, science and engineering fields. This course covers the basics of chemistry and chemical contributions to society such as polymers, consumer chemicals, drugs, and radioactivity. May not be used for degree credit with CHEM 1215 or CHEM 1314.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 2 Contact: 5 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Lecture, Combined lecture lab & disc
Department/School: Chemistry
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

CHEM 1215 Chemical Principles I (LN)
Description: The beginning chemistry course recommended for students in the applied biological sciences. This course covers chemical principles and their applications to their properties and transformations of matter, including periodic classification of the elements, laws of chemical combination, atomic and molecular structure, and chemical bonding. Course previously offered as CHEM 1015.
Credit hours: 5
Contact hours: Lecture: 3 Lab: 2 Contact: 6 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Lecture, Combined lecture lab & disc
Department/School: Chemistry
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

CHEM 1225 Chemical Principles II (LN)
Prerequisites: Minimal grade of "C" in CHEM 1215 or CHEM 1314 or CHEM 1414 or acceptable AP credit. MATH 1483 or MATH 1513 or a higher level math course with a "C" or better or an acceptable math placement score (see placement.okstate.edu) or acceptable AP credit.
Description: A continuation of Chemical Principles I for students in the applied biological sciences. Topics include gas laws, chemical equilibria, acid/base chemistry, oxidation/reduction, elementary chemical thermodynamics, and introduction to organic molecules.
Credit hours: 5
Contact hours: Lecture: 3 Lab: 2 Contact: 6 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Lecture, Combined lecture lab & disc
Department/School: Chemistry
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

CHEM 1314 Chemistry I (LN)
Prerequisites: MATH 1483 or MATH 1513 or higher with a “C” or better or an acceptable math placement score (see placement.okstate.edu) or acceptable AP credit.
Description: The beginning chemistry course recommended for students in basic biological sciences (including pre-medical science and pre-veterinary sciences), physical sciences and engineering. This course covers chemical principles and their applications to the properties and transformations of matter, including periodic classification of the elements, laws of chemical combination, gas laws, atomic and molecular structure, and chemical bonding.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Chemistry
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

CHEM 1414 General Chemistry for Engineers (LN)
Prerequisites: MATH 1483 or MATH 1513 or higher with a “C” or better or an acceptable math placement score (see placement.okstate.edu) or acceptable AP credit.
Description: One seminar survey of general chemistry for engineering students. Topics include physical properties of states of matter, stoichiometry, atomic theory, periodic properties, bonding, thermodynamics, equilibrium, acid-base and redox reactions, electrochemistry. Topics will be discussed with respect to applications to materials, energy and environmental topics relevant to engineering students.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Chemistry
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

CHEM 1515 Chemistry II (LN)
Prerequisites: Minimum grade of "C" in CHEM 1314 or CHEM 1414 or acceptable AP credit.
Description: A continuation of Chemistry 1 for students in the basic biological sciences (including premedical science and pre-veterinary science), physical sciences, and engineering. Topics include, but not limited to, intermolecular forces, liquids and solids, chemical equilibria, acid/base chemistry, oxidation/reduction, electrochemistry, chemical kinetics, and elementary chemical thermodynamics.
Credit hours: 5
Contact hours: Lecture: 3 Lab: 2 Contact: 6 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Lecture, Combined lecture lab & disc
Department/School: Chemistry
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

CHEM 2113 Principles of Analytical Chemistry
Prerequisites: A grade of "C" or better in CHEM 1515.
Description: Statistical analysis of analytical data, acid-base equilibria, acid-base titrations, electrochemistry, analytical separations, as well as atomic and molecular optical spectroscopy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 2122 Quantitative Analysis Laboratory
Prerequisites: CHEM 2113 or concurrent enrollment.
Description: Laboratory exercises related to theoretical principles in CHEM 2113.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Chemistry

CHEM 2890 Honors Experience in Chemistry
Prerequisites: Honors Program participation and concurrent enrollment in designated course(s).
Description: A supplemental Honors experience in Chemistry to partner concurrently with designated lower-division CHEM course(s). This course adds a different intellectual dimension to designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry
General Education and other Course Attributes: Honors Credit

CHEM 2980 Current Topics for Chemical Professionals
Prerequisites: Current enrollment in CHEM 1314 or higher chemistry course.
Description: Current topics for pre-chemical professionals which may include, but are not limited to; Chemistry of Life; Energy; Environmental; Materials; Energy, What's that Stuff?, and Teaching/Learning. The course is intended to provide interested undergraduates with a broader introduction to topics relevant to future trends in chemistry and chemically-related fields. Discussion will be directed by faculty members with expertise in the identified area. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 2990 Special Problems in Chemistry
Prerequisites: CHEM 1314 or concurrent enrollment.
Description: Training in independent work, study of relevant literature and experimental investigation of an assigned problem at the lower-division level. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lab: 2-6 Contact: 2-6
Levels: Undergraduate
Schedule types: Lab
Department/School: Chemistry

CHEM 3012 Survey of Organic Chemistry Laboratory
Prerequisites: CHEM 3013 or concurrent enrollment.
Description: Laboratory exercises related to theoretical principles covered in CHEM 3013.
Credit hours: 2
Contact hours: Lab: 3 Contact: 4 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Combined Lab & Discussion
Department/School: Chemistry

CHEM 3013 Survey of Organic Chemistry
Prerequisites: Minimum grade of "C" in CHEM 1225 or CHEM 1515 or acceptable AP credit.
Description: Terminal, one-semester organic chemistry lecture course covering the general principles of nomenclature, structure, bonding, methods of preparation, reactions and use of acyclic, cyclic, and aromatic compounds.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 3053 Organic Chemistry I
Prerequisites: CHEM 1515 with a "C" or better or acceptable AP credit.
Description: This course is the first of the in-depth sequence of organic chemistry. Topics include nomenclature, structure, stereochemistry, reactivity, properties, and synthesis of organic molecules with an emphasis on reaction mechanisms. This course is required for many life and physical science majors and pre-health students. Consult your degree requirements and professional school admission requirements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 3112 Organic Chemistry Laboratory
Prerequisites: Completion of CHEM 3153 or concurrent enrollment.
Description: Laboratory exercises related to theoretical principles covered in CHEM 3053 and 3153.
Credit hours: 2
Contact hours: Lab: 3 Contact: 4 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Combined Lab & Discussion
Department/School: Chemistry

CHEM 3153 Organic Chemistry II
Prerequisites: A grade of "C" or higher in CHEM 3053.
Description: This course is the second of the in-depth sequence of organic chemistry starting with CHEM 3053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 3353 Descriptive Inorganic Chemistry
Prerequisites: A grade of "C" or higher in CHEM 1515, CHEM 1225.
Description: Structures and properties of the elements and their many compounds in the broadest sense which includes the modern technologically important materials, organometallics, and inorganic substances of biological significance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 3363 Bioinorganic Chemistry
Prerequisites: Grade of "C" or higher in CHEM 1225 or CHEM 1515 or acceptable AP credit.
Description: Discusses the structural and functional roles of main group and transition metals within biological systems. Topics may include: the transport, distribution and properties of metals in biological systems, the coordination chemistry of biologically active metals, physical methods for determining metalloprotein structure and reactivity, chemical processes including redox processes and long-range electron transfer reactions and metallocofactors and metal clusters. May not be used for degree credit with CHEM 5363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 3413 Physical Chemistry Applications
Prerequisites: Minimum grade of "C" or higher in both CHEM 1515 and MATH 2144.
Description: A practical and applied approach to key topics in physical chemistry, including thermodynamics, chemical equilibria, and chemical kinetics, and how they relate to general chemical and biological processes on a molecular and macroscopic level.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 3433 Physical Chemistry I
Prerequisites: Minimum grade of "C" or higher in: CHEM 1515 and MATH 2153 and PHYS 2114.
Description: Introductory theoretical analysis of molecular structure, chemical bonding and macroscopic chemical systems using quantum theory, classical and statistical thermodynamics, and kinetics. Previously offered as CHEM 3434.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 3532 Physical Chemistry Laboratory
Prerequisites: A grade of "C" or better in CHEM 2122 and CHEM 3433.
Description: Modern laboratory instrumentation, experimental techniques, and computational methods in physical chemistry.
Credit hours: 2
Contact hours: Lab: 3 Contact: 4 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Combined Lab & Discussion
Department/School: Chemistry

CHEM 3553 Physical Chemistry II
Prerequisites: A grade of "C" or higher in CHEM 3433.
Description: A continuation of CHEM 3433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 3890 Advanced Honors Experience in Chemistry
Prerequisites: Honors Program participation and concurrent enrollment in designated course(s).
Description: A supplemental Honors experience in Chemistry to partner concurrently with designated upper-division CHEM course(s). This course adds a different intellectual dimension to designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry
General Education and other Course Attributes: Honors Credit

CHEM 4022 Modern Methods of Chemical Analysis Laboratory
Prerequisites: CHEM 4023 or concurrent enrollment.
Description: Laboratory exercises related to theoretical principles covered in CHEM 4023. May not be used for degree credit with CHEM 4020.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Chemistry

CHEM 4023 Modern Methods of Chemical Analysis
Prerequisites: A minimum grade of "C" in CHEM 2113 and CHEM 2122.
Description: The design, operational principles and practical application of modern instrumental methods used in chemical analysis of natural and artificial materials. Covers the reagents and instruments used in the separation, identification and quantification of the chemical components. May not be used for degree credit with CHEM 4020.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 4033 Forensic Chemistry
Prerequisites: CHEM 2113 with a "C" or better.
Description: An introduction to the principles and practices of forensic chemistry, with a focus on the analytical techniques and chemical analyses important in criminal investigations. This lecture course will cover the critical statistical practices necessary for taking convincing quantitative measurements. Analytical techniques including chromatography, UV/Vis & IR spectroscopy, mass spectrometry, will be introduced and discussed alongside historical forensic case studies. May not be used for degree credit with CHEM 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 4123 Biomolecular Chemistry and Function
Prerequisites: Minimum grade of "C" in CHEM 3153 and CHEM 3112.
Description: The class is designed to use examples from classic and current literature to expand the student's knowledge of the chemical techniques required to understand the structure and function of macromolecules in solution. These topics include chemical forces that stabilize macromolecular and supramolecular structure, thermodynamics and statistical mechanics of macromolecular and polymer folding, diffusional processes, kinetics, and the relationship of these principles to practical application in experimental design and interpretation. May not be used for degree credit with CHEM 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 4312 Inorganic Chemistry Laboratory
Prerequisites: Minimum grade of "C" or better in CHEM 3112.
Description: Course will provide students with practical knowledge and experimental techniques commonly used in inorganic and organometallic chemistry.
Credit hours: 2
Contact hours: Lab: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Combined Lab & Discussion
Department/School: Chemistry

CHEM 4313 Medicinal Organic Chemistry
Prerequisites: Minimum grade of "C" in CHEM 3153 and CHEM 3112.
Description: This course looks at the development of new organic molecules for use in the pharmaceutical industry and investigates their pathway from the design stage to eventual introduction to the market. This course explores a range of important techniques necessary for the synthesis of complex organic architectures, an introduction to asymmetric synthesis, and polymer-supported synthesis of biomolecules including peptides and nucleic acids. This course also introduces various classes of drugs, mechanisms of action, drug metabolism and structure activity relationships.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 4320 Chemical and Spectrometric Identification of Organic Compounds
Prerequisites: A grade of "C" or higher in CHEM 3112 and CHEM 3153.
Description: Theory and practice in separating mixtures of organic compounds and some theory and practice in identifying organic compounds by spectroscopic methods. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lab: 2-6 Contact: 2-6
Levels: Undergraduate
Schedule types: Lab
Department/School: Chemistry

CHEM 4322 Advanced Organic Chemistry Laboratory
Prerequisites: Minimum grade of "C" in both CHEM 3153 and CHEM 3112.
Description: Training in the art of chemical synthesis, phenomena surrounding molecular interactions, separation strategies, and spectroscopic analysis of organic molecules. Same course as CHEM 4320.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Chemistry

CHEM 4333 Inorganic Chemistry I
Prerequisites: CHEM 1515 with minimum grade of "C."
Description: Bonding theory, molecular symmetry and its applications to structure, bonding and spectroscopy, structures of simple solids, inorganic acids and bases, oxidation and reduction, and industrial production of elements, coordination chemistry, crystal field theory, ligand field theory, introduction to organometallic chemistry. May not be used for degree credit with CHEM 5260.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 4433 Computational Chemistry and Molecular Modeling
Prerequisites: Grade of "C" or better in either CHEM 3413 or CHEM 3433.
Description: This course introduces the concepts, tools, and possibilities for computational modeling of molecular systems. Primary topics of study include classical molecular mechanics simulations, quantum mechanical calculations, and molecular graphics & visualization. One key effort will be introduction into the usage of high performance computing systems. Such instruction on the use of the computational resources available at OSU will be provided in hands-on computer exercises that involve constructing, performing, and analyzing molecular simulations and calculations. May not be used for degree credit with CHEM 5433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 4482 Chemical Research & Literature Review
Prerequisites: CHEM 3153 with a "C" or better and Junior or Senior standing
Description: Student will learn how to conduct a comprehensive literature review of a current topic in chemistry, critically evaluate the current state of knowledge in this field, and summarize the findings. This evaluation will be presented orally and in a detailed written report.
Credit hours: 2
Contact hours: Lecture: 1 Contact: 2 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Chemistry

CHEM 4650 Selected Topics in Chemistry
Description: Supervised study of selected topics and fields not otherwise covered. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 4990 Undergraduate Research in Chemistry
Prerequisites: Instructor permission required.
Description: Training in independent work, study of relevant literature, and experimental investigation of an assigned problem culminating in a written and oral report. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 4993 Senior Thesis in Chemistry
Prerequisites: Instructor permission required.
Description: Capstone undergraduate research project and laboratory skills development in a discipline of chemistry. Guided reading and research program under the direction of a faculty member culminating in a senior research thesis and oral report.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 5000 Thesis
Description: Familiarizes the student with methods used in research in chemistry. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 5001 Introduction to Chemistry Research
Prerequisites: Graduate standing.
Description: Introduction to chemical research topics of interest to the department. Special emphasis placed on ethics, plagiarism, codes of conduct, research notebooks, publishing, and presentations.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5011 Graduate Seminar
Description: Preparation and presentation of seminars usually on subjects of current interest taken from the literature. Completion of 1 credit hour required for MS degree.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Chemistry

CHEM 5033 Forensic Chemistry
Prerequisites: CHEM 2113
Description: An introduction to the principles and practices of forensic chemistry, with a focus on the analytical techniques and chemical analyses important in criminal investigations. This lecture course will cover the critical statistical practices necessary for taking convincing quantitative measurements. Analytical techniques including chromatography, UV/Vis & IR spectroscopy, mass spectrometry, will be introduced and discussed alongside historical forensic case studies. May not be used for degree credit with CHEM 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5053 Foundations of Physical Chemistry
Prerequisites: CHEM 3433 and CHEM 3153, or equivalent.
Description: This course provides the foundations of physical chemistry required for all disciplines of chemistry to understand the underlying principles necessary to advance at the graduate level. This core treatment will address thermodynamics and equilibria, chemical kinetics, quantum mechanics, spectroscopy, and statistical thermodynamics. These topics will provide the conceptual learning critical for interdisciplinary applications of physical chemistry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5063 Foundations of Organic Chemistry
Prerequisites: BS/BA in chemistry, CHEM 3153, or equivalent.
Description: This course provides the basic principles of organic chemistry necessary to advance at the graduate level in all disciplines of chemistry. This treatment will address bonding and its consequences, stereochemistry and conformational analysis, functional groups and their interconversions, reaction mechanisms, reactive intermediates and catalysis, synthesis and retrosynthetic analysis, and modern characterization. These topics will provide the conceptual background for interdisciplinary applications of organic chemistry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5073 Foundations of Analytical Chemistry
Prerequisites: CHEM 4023 and CHEM 4022, or equivalent.
Description: This course provides the basic principles of analytical chemistry necessary to advance at the graduate level in all disciplines of chemistry. Subject matter includes the underlying principles of chemical analyses with emphasis on chemical and biological reactions (equilibrium, reaction rate, chemical labeling), instrumentation and instrumental design, sampling, sample preparation and method validation. These topics will provide the conceptual foundation critical for interdisciplinary applications of analytical chemistry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5103 Physical and Chemical Separations
Prerequisites: One year of physical chemistry.
Description: Principles of bulk and multi-stage separation methods: chromatography, liquid-liquid extraction, and zone melting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5113 Equilibrium and Kinetics in Analytical Chemistry
Prerequisites: One year of physical chemistry.
Description: Physical and chemical principles of equilibrium and kinetics as applied to analytical problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5123 Biomolecular Chemistry and Function
Prerequisites: CHEM 3153 and CHEM 3112
Description: The class is designed to use examples from classic and current literature to expand the student's knowledge of the chemical techniques required to understand the structure and function of macromolecules in solution. These topics include chemical forces that stabilize macromolecular and supramolecular structure, thermodynamics and statistical mechanics of macromolecular and polymer folding, diffusional processes, kinetics, and the relationship of these principles to practical application in experimental design and interpretation. May not be used for degree credit with CHEM 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5213 Innovations in Chemistry and STEM Education
Description: This course will train students on evidence-based instructional classroom practices relevant for improving student persistence and performance in chemistry and other STEM courses and conducting discipline-based education research in STEM.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5220 Topics For Teachers
Prerequisites: Teaching experience.
Description: Designed to help elementary and secondary science teachers improve their subject matter competence in chemistry. Content varies depending on the needs of specific groups of teachers. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 5223 Polymer Chemistry
Prerequisites: CHEM 3153 and CHEM 3433 or equivalent.
Description: Preparation and polymerization of organic monomers; properties and uses of resulting high polymers; theories of polymerization; inorganic and natural organic polymers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5263 Foundations of Inorganic Chemistry
Prerequisites: CHEM 1515 with minimum grade of "C."
Description: Bonding theory, molecular symmetry and its applications to structure, bonding and spectroscopy, structures of simple solids, inorganic acids and bases, oxidation and reduction, and industrial production of elements, coordination chemistry, crystal field theory, ligand field theory, introduction to organometallic chemistry. May not be used for degree credit with CHEM 4333. Previously offered as CHEM 5260.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5283 Solid State Chemistry
Prerequisites: CHEM 5263.
Description: Structure, bonding, and properties of crystalline and amorphous inorganic solids. Emphasis on the characterization of inorganic solids and phase transitions in inorganic solids.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5323 Reactions of Organic Compounds
Prerequisites: CHEM 3153.
Description: Products and mechanisms of reactions of importance in organic synthesis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5363 Bioinorganic Chemistry
Prerequisites: CHEM 1515
Description: Discusses the structural and functional roles of main group and transition metals within biological systems. Topics may include: the transport, distribution and properties of metals in biological systems, the coordination chemistry of biologically active metals, physical methods for determining metalloprotein structure and reactivity, chemical processes including redox processes and long-range electron transfer reactions and metallocofactors and metal clusters. May not be used for degree credit with CHEM 3363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5373 Spectrometric Identification of Organic Compounds
Prerequisites: CHEM 4320.
Description: Lectures on ultraviolet, circular dichroism, infrared, nuclear magnetic resonance (NMR) and mass spectrometry (MS). More advanced techniques in NMR and MS stressed. Hands-on training and use of modern spectroscopic instrumentation in laboratory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5433 Computational Chemistry and Molecular Modeling
Prerequisites: CHEM 3433 or equivalent.
Description: This course introduces the concepts, tools, and possibilities for computational modeling of molecular systems. Primary topics of study include classical molecular mechanics simulations, quantum mechanical calculations, and molecular graphics & visualization. One key effort will be introduction into the usage of high performance computing systems. Such instruction on the use of the computational resources available at OSU will be provided in hands-on computer exercises that involve constructing, performing, and analyzing molecular simulations and calculations. May not be used for degree credit with CHEM 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5443 Mechanism and Structure in Organic Chemistry
Prerequisites: CHEM 3153 and CHEM 3553.
Description: Relationship of properties of organic compounds to their structure; mechanisms of organic reactions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5563 Chemical Thermodynamics I
Prerequisites: CHEM 3553.
Description: Statistical and classical thermodynamics applied to chemical systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5623 Quantum Chemistry I
Prerequisites: CHEM 3553.
Description: Fundamentals of quantum mechanics, including classical mechanics, wave representation of matter, the Schroedinger equation, and atomic structure.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 5650 Selected Topics in Chemistry
Description: Supervised study of selected topics and fields not otherwise covered. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 5963 Advanced Inorganic Chemistry
Prerequisites: CHEM 5263.
Description: Inorganic reaction mechanisms, catalysis, electronic spectra of complexes, luminescence of inorganic compounds, lanthanide and actinide chemistry, introduction to biological inorganic chemistry. Previously offered as CHEM 5960.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 6000 Doctoral Dissertation Research
Prerequisites: MS degree in chemistry or consent of instructor.
Description: Independent investigation under the direction and supervision of a major professor. Offered for variable credit, 1-15 credit hours, maximum of 60 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 6010 Research Seminar
Prerequisites: Consent of instructor.
Description: Participation in departmental seminars on current topics in chemistry. One credit hour each fall and spring required for MS and PhD candidates with the exception of the first semester. Offered for variable credit, 1-20 credit hours, maximum of 20 credit hours.
Credit hours: 1-20
Contact hours: Contact: 1-20 Other: 1-20
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 6011 Advanced Seminar
Prerequisites: CHEM 5011 or MS degree.
Description: Preparation and oral presentation of critical reviews on chemical subjects. Usually related to the student's research area. Completion of one credit hour required for the PhD degree.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Chemistry

CHEM 6050 Special Topics in Analytical Chemistry
Description: Supervised study of topics and fields not otherwise covered. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 6103 Electroanalytical Chemistry
Prerequisites: CHEM 4024.
Description: The theory, practice and instrumentation in various areas of modern electroanalytical chemistry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 6113 Analytical Spectroscopy
Prerequisites: CHEM 4024.
Description: Survey of selected topics in analytical applications of spectroscopic techniques. Fundamental concepts as well as current trends in research, including instrumentation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 6223 Physical Polymer Science
Prerequisites: CHEM 5223 or equivalent.
Description: A study of the physical properties of macromolecular systems including polymer solutions, gels, bulk polymers and rubbers. The characterization of polymers based on their thermal, spectroscopic, microstructure and molecular masses is also discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 6303 Physical Organic Chemistry
Prerequisites: BS/BA in chemistry, CHEM 3153, or equivalent.
Description: This course is an examination of the methods used in organic chemistry to probe mechanisms and reactive intermediates. Topics will include isotope effects, kinetics, linear free energy relationships, an introduction of orbital symmetry, rearrangements, stereo electronic effects, the generation and chemistry of carbenium ions, carbanions, carbenes, radicals, excited states, and strained molecules.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 6420 Special Topics in Organic Chemistry
Prerequisites: CHEM 3153.
Description: Deals with topics not covered in other courses. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 6453 Chemical Kinetics
Prerequisites: CHEM 3553.
Description: The kinetics of chemical reactions and their theoretical interpretation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 6553 Molecular Spectroscopy
Prerequisites: CHEM 5623.
Description: Spectra and structure of molecules.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 6650 Selected Topics in Chemistry
Prerequisites: Consent of instructor.
Description: Supervised study of selected topics and fields not otherwise covered. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemistry

CHEM 6803 Photonics I: Advanced Optics
Prerequisites: ECEN 3813 or PHYS 3213, or consent of instructor.
Description: Advanced optics, including spectral and time characteristics of detectors, characteristics of lasers, time, spectral and spatial parameters of laser emission, interferometric techniques, and nonlinear effects such as two-photon absorption and second and third harmonic generations. Ultra short laser pulses. Same course as ECEN 6803 & PHYS 6803. Offered for fixed credit, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

CHEM 6810 Photonics II: THz photonics and THz time-domain spectroscopy
Prerequisites: CHEM 6803.
Description: THz photonics and THz time-domain spectroscopy (THz-TDS). Concepts and techniques of driving electronic circuitry with ultra short laser pulses to generate and detect freely propagating pulses of THz electromagnetic radiation using several operational research systems. Same course as ECEN 6810 & PHYS 6810. Offered for fixed credit, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

CHEM 6811 Photonics II: Thz Photonics and THz - TDS
Prerequisites: CHEM 6803.
Description: THz photonics and THz time-domain spectroscopy (THz-TDS). Concepts and techniques of driving electronic circuitry with ultrashort laser pulses to generate and detect freely propagating pulses of THz electromagnetic radiation using several operational research systems. Same course as ECEN 6811 and PHYS 6811.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemistry

CHEM 6820 Photonics II: Spectroscopy II
Prerequisites: CHEM 6803.
Description: Operating principles and applications of laser spectroscopy of atoms, molecules, solids and complex fluids. Absorption, emission, photon correlation, coherence, time resolved Fourier transform. Raman spectroscopy and non-linear optical. Same course as ECEN 6820 & PHYS 6820. Offered for fixed credit,1 credit hour(s), maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

CHEM 6830 Photonics II: Spectroscopy III
Prerequisites: CHEM 6803.
Description: Advanced spectroscopic instruments and methods used for investigation of semi-conductors and solid state material. Stimulated emission characterized both in wavelength and in time. Time-resolved fluorescence measurements. Multiphotonic excitations. Fast measuring techniques, including subnanosecond detectors, picosecond streak cameras, and ultra fast four-wave mixing and correlation techniques. Time-dependent photoconductivity measurements. Same course as ECEN 6830 & PHYS 6830. Offered for fixed credit, 1 credit hour(s), maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

CHEM 6840 Photonics III: Microscopy II
Prerequisites: CHEM 3553 or consent of instructor.
Description: The structure and imaging of solid surfaces. Basics of scanning probe microscopy (SPM). Contact and noncontact atomic force microscopy (AFM). Scanning tunneling microscopy (STM) in air. Same course as ECEN 6840 & PHYS 6840. Offered for fixed credit, 1 credit hour(s), maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

CHEM 6850 Photonics III: Microscopy II
Prerequisites: CHEM 3553 or consent of instructor.
Description: Advanced techniques of scanning probe microscopy (SPM). Magnetic force microscopy, Kelvin force microscopy, scanning tunneling microscopy (STM) in vacuum. Characterization of materials with SPM. Nanolithography with SPM. Device manufacturing and analysis. Same course as ECEN 6850 & PHYS 6850. Offered for fixed credit, 1 credit hour(s), maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

CHEM 6860 Photonics III: Microscopy III and Image Processing
Prerequisites: ECEN 5793.
Description: Digital image processing, including projects. Image acquisition and display, image enhancement, geometric operations, linear and nonlinear filtering, image restoration, edge detection, image analysis, morphology, segmentation, recognition, and coding/compression. Same course as ECEN 6860 & PHYS 6860. Offered for fixed credit, 1 credit hour(s), maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

CHEM 6870 Photonics IV: Synthesis and Devices I
Prerequisites: CHEM 6803 and CHEM 6840.
Description: Preparation of functional nanostructures and related optical and electronic devices. Physical and chemical methods of thin film deposition. Engineering of prototypes of light emitting diodes, sensors, optical limiting coatings, lithographic patterns. Same course as ECEN 6870 & PHYS 6870. Offered for variable credit, 1 credit hour(s), maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

CHEM 6880 Photonics IV: Semiconductor Devices, Testing and Characterization
Prerequisites: CHEM 6803.
Description: Test and characterization of semiconductor and optoelectronic devices. Hall Effect, four point probe, CV and IV measurements, optical pump-probe, photoluminescence and electro-optics sampling. Same course as ECEN 6880 & PHYS 6880. Offered for fixed credit, 1 credit hour(s), maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

CHEM 6890 Photonics IV: Semiconductor Synthesis and Devices III
Prerequisites: CHEM 6803.
Description: Processing, fabrication and characterization of semiconductor optoelectronic devices in class 100/10000 clean rooms. Clean room operation, including general procedure for material processing and device fabrication. Device processing using a variety of processing such as mask aligner, vacuum evaporators and rapid thermal annealer. Testing using optical and electrical testing apparatus such as I-V, C-V, Hall and optical spectral measurement systems. Same course as ECEN 6890 & PHYS 6890. Offered for variable credit, 1 credit hour(s), maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Chemistry

Chinese (CHIN)

CHIN 1713 Elementary Chinese I (F)
Description: Basic introduction to spoken Mandarin Chinese and Chinese characters. Training in pronunciation, conversation, grammar and reading. Not for native speakers per University Academic Regulation 4.9. Previously offered as CHIN 1115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

CHIN 1813 Elementary Chinese II (F)
Prerequisites: CHIN 1713 or equivalent proficiency.
Description: Continuation of CHIN 1713. Mastery of the basic grammatical patterns and conversational principles, and increasing repertory of Chinese characters. Not for native speakers per University Academic Regulation 4.9. Previously offered as CHIN 1225.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

CHIN 2713 Intermediate Chinese I (F)
Prerequisites: CHIN 1813 or equivalent proficiency.
Description: A continuation of CHIN 1813. Emphasis on fluency in spoken Mandarin Chinese, structures of greater complexity, a greater repertory of characters and vocabulary items, and reading ability. Not for native speakers per University Academic Regulation 4.9. Previously offered as CHIN 2115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

CHIN 2813 Intermediate Chinese II
Prerequisites: CHIN 2713 or equivalent proficiency.
Description: Continuation of CHIN 2713. Not for native speakers per University Academic Regulation 4.9. Previously offered as CHIN 2225.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

CHIN 3343 Business Chinese
Prerequisites: CHIN 2813 or equivalent proficiency.
Description: This course is designed to help students build upon their fundamental Chinese language communication skills by using professional and formal business tools such as letters, reports, news, and oral presentations in structured business environments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

CHIN 4713 Advanced Readings in Chinese
Prerequisites: CHIN 2813 or equivalent proficiency.
Description: Development of student competence in reading a wide variety of materials by contemporary Chinese writers. Previously offered as CHIN 3133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

CHIN 4813 Advanced Chinese Conversation
Prerequisites: CHIN 2813 or equivalent proficiency.
Description: Development of general oral and aural proficiency. Previously offered as CHIN 3013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

Civil Engineering (CIVE)

CIVE 2041 Civil and Environmental Engineering Seminar
Prerequisites: Sophomore standing or department permission required.
Description: An introduction to the importance of communication, professional ethics, knowledge of contemporary issues, and the role these play in developing a broad education. Emphasis will be placed on understanding the impact of engineering solutions in a global and societal context. The various sub-disciplines within the fields of Civil and Environmental Engineering will also be presented.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 2081 Environmental Chemistry for Engineers
Prerequisites: CHEM 1414 or CHEM 1314 with minimum grade of "C."
Description: This course applies the material covered in a general chemistry course for engineers to the skills needed for environmental engineering. In achieving these objectives, this course also supports Outcome 1 of the BSCE degree program accreditation requirements. (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 3413 Structural Analysis
Prerequisites: Minimum grade of "C" in ENSC 2143.
Description: Analysis of internal forces and deflections of structures subjected to static loading. Beams, trusses, and framed structures analyzed by appropriate classical methods. Classical methods and modern computer procedures for the analysis of statically indeterminate structures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 3513 Structural Steel Design
Prerequisites: CIVE 3413 with minimum grade of C.
Description: Introduction to the design of structural steel members and connections in accordance with AISC specifications. May not be used for degree credit with ARCH 3323. May not be used for degree credit with CIVE 5473 and ARCH 3323.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 3523 Reinforced Concrete Design
Prerequisites: CIVE 3413 with minimum grade of C.
Description: Introduction to the design of reinforced concrete elements in accordance with the strength design requirements of the ACI Building code. May not be used for degree credit with ARCH 4123.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 3614 Engineering Surveying
Prerequisites: Minimum grade of "C" required in MATH 2123 or MATH 2144.
Description: Principles and techniques of vertical and horizontal measurements related to engineering and construction projects. Linear and angular measurements, differential leveling, traverses, topographic surveys, construction surveying, horizontal and vertical curves, earthwork quantities and design of route systems.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 3623 Engineering Materials Laboratory
Prerequisites: ENSC 2143 with minimum grade of "C."
Description: Introduction on material properties and related design criteria for common construction materials: structural steel, wood and timber, aggregates, portland cement and concrete, asphalt binder and concrete. Discussion on material specific topics on fabrication methods; mechanical and non-mechanical properties; use and applications; standards, testing and quality control measures; selection and design criteria. Laboratory exercises supplement lecture theory and provide "hands-on" experience in performing standard tests.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 3633 Transportation Engineering
Prerequisites: Junior or senior standing and MATH 2163 with minimum grade of "C".
Description: Planning, design and operations of transportation facilities. Vehicle characteristics and human factors in design. Traffic stream variables and their measurement techniques. Basic traffic flow models. Highway and street intersection capacity and level of service. Traffic control concepts. Transportation systems management. Application of statistical analysis and operations research to analyze transportation problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 3714 Introduction to Geotechnical Engineering
Prerequisites: Minimum grade of "C" in ENSC 2143, or department permission required.
Description: Physical and mechanical properties of soils, including grain size analysis, plasticity, permeability, consolidation, and shear strength. Use of physical and mechanical properties to calculate stresses in a soil mass, lateral earth pressures and bearing capacity. Laboratory tests conducted to determine the physical and mechanical soil properties needed for application in geotechnical design. Course previously offered as CIVE 3713.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 3813 Environmental Engineering Science
Prerequisites: CIVE 2081 with minimum grade of "C" or concurrent enrollment or (CHEM 1515 with minimum grade of "C" and ENSC 3233 with minimum grade of "C").
Description: Fundamentals of environmental chemistry, biogeochemical cycles, materials and energy balances, water quality, solid waste, air pollution, global climate change, sustainability, and risk assessment. Techniques for water and wastewater treatment, solid and hazardous waste management, and air pollution abatement. May not be used for degree credit with CIVE 5803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 3833 Applied Hydraulics
Prerequisites: Minimum grade of "C" in ENSC 3233, and (CHEM 1414 or CHEM 1515).
Description: Basic hydraulic principles and their application in civil engineering problems. Analyses of water distribution networks, open channels, storm-water management and wastewater collection systems, water pumps, hydraulic models, hydraulic measurements, treatment plant hydraulics and hydraulic structures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 3843 Hydrology
Prerequisites: Minimum grade of "C" in ENSC 3233 and (CHEM 1414 or CHEM 1515).
Description: Basic principles of surface groundwater hydrology and their application in engineering problems. The hydrologic cycle, weather and hydrology, precipitation, evaporation, transpiration, subsurface waters, stream flow hydrographs, hydrologic and hydraulic stream routing, probability of hydrologic events, application of hydrologic models. May not be used for degree credit with BAE 4314.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 3853 Environmental Engineering Laboratory
Prerequisites: CIVE 3813 with minimum grade of "C".
Description: Performance of experiments with benchscale environmental engineering unit operations, review of chemical principles and analyses important to the evaluation of these and other environmental engineering applications. Emphasis on the development of experimental results that can be used in the design of full-scale units. May not be used for degree credit with CIVE 5813.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 4010 Civil Engineering Research
Prerequisites: Senior standing or consent of instructor.
Description: Research and investigation of civil engineering problems. Offered for variable credit, 1-4 credit hours, maximum of 12 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Civil & Environ. Eng

CIVE 4013 Aquatic Chemistry
Prerequisites: Senior standing and minimum grade of "C" in CHEM 1414 or CHEM 1515, and minimum grade of "C" in CIVE 3813.
Description: Application of chemical principles to environmental problems. Chemical kinetics, chemical equilibrium, acid-base chemistry, development of pc-pH diagrams, and coordination chemistry. Precipitation and dissolution reactions and oxidation-reduction reactions. Course is a senior elective. May not be used for degree credit with CIVE 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4023 Engineering for Sustainability
Prerequisites: Senior standing or instructor permission.
Description: Provides foundational understanding of sustainability and how it can be incorporated into engineering designs. Through hands-on activities and an overarching design project, students explore sustainability tools and frameworks that can be applied to future engineering projects. The ultimate goal is for students to leave this course as advocates for sustainability in engineering design, equipped with the skills to identify and recommend sustainable practices in their future careers. Course is a senior elective. May not be used for degree credit with CIVE 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4033 GIS Applications for Water Resources
Prerequisites: Senior standing.
Description: Application of theoretical and practical components of geographic information system for engineers. Digital mapping of water resources information, spatial coordinate systems and digital terrain analysis using digital elevation models. Analysis of a variety of spatial data in efficient and effective manner. Introduction of geospatial analytical algorithms to solve civil and environmental problems. Course is a senior elective. May not be used for degree credit with CIVE 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4041 Engineering Practice
Prerequisites: Senior standing.
Description: Topics relevant to the professional practice of civil and environmental engineering will be introduced, to include management principles, project management, and the laws that impact the practice of engineering, such as OSHA and ADA. Emphasis will be placed on written communication skills to include resumes, letters of introduction, and job interviews. The advantages of professional registration and technical/ professional society membership will be presented as well as discussions of professional ethics, income taxes and investments. Course previously offered as CIVE 4042.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4043 Senior Design
Prerequisites: Minimum grades of “C” in each: CIVE 3623 and CIVE 3633 and CIVE 3714 and CIVE 3833; and within last two semesters of program completion. Minimum grade of "C" in CIVE 3513 or CIVE 3523.
Description: Major comprehensive design experience using the team approach. Industry practitioners provide design projects and analyze and critique results. Extends the undergraduate experience and provides the student with opportunities to analyze and design complex structures. Capstone course. May not be used for degree credit with CIVE 4143.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 4050 Special Topics in Civil & Environmental Engineering
Prerequisites: Senior standing and within last 2 semesters of program completion.
Description: New courses offered in CIVE that have yet to be assigned a permanent number. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Civil & Environ. Eng

CIVE 4053 Transportation Geotechnics
Prerequisites: CIVE 3714 minimum grade of "C".
Description: This course focuses on the application of geotechnical engineering concepts to the analysis, design, and construction of transportation infrastructure. Topics covered include: soil classification systems, soil variability; subgrade evaluation procedures, repeated loading behavior of soils; soil compaction and field control; and subgrade stability for transportation facility engineering. Course is a senior elective. May not be used for degree credit with CIVE 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4063 Introduction to Railroad Engineering
Prerequisites: CIVE 3633 with a minimum grade of “C”.
Description: This course provides civil engineering students a technical transportation course in Railroad Engineering. It covers a wide spectrum of railway engineering, including the basic principles, railroad design, construction, operation, evaluation and maintenance of rail infrastructure and networks. The students are expected to develop small group skills through team homework assignments and class interaction. Course is a senior elective. May not be used for degree credit with CIVE 5063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4073 Stormwater Management and Green Infrastructure
Prerequisites: Senior standing and (CIVE 3843 or BAE 4314 with a minimum grade of "C").
Description: Covers stormwater management tools and techniques during construction and post-development. Topics include rules and regulations, erosion processes, sedimentation, erosion and sediment control, and green infrastructure. Introduction to software for stormwater management. Course is a senior elective. May not be used for degree credit with CIVE 5973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4083 Applied Statistics for Civil Engineers
Prerequisites: Senior standing, and CIVE 3633 with minimum grade of "C," and STAT 4033 or STAT 4073 with minimum grade of "C."
Description: This course covers subjects including statistical fundamentals; continuous, count, discrete dependent variable models, random parameter models, and Bayesian modeling that are widely used in civil, particularly transportation engineering. Course is a senior elective. May not be used for degree credit with CIVE 5083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4093 Transportation Safety and Analysis
Prerequisites: CIVE 3633 with minimum grade of "C".
Description: This course introduces fundamental concepts for performing traffic safety analyses, including safety management systems, different safety countermeasures, development of statistical models with countermeasures and their effectiveness, economic analyses, and crash investigation. Students should be prepared to apply these important safety concepts in professional practice. Course is a senior elective. May not be used for degree credit with CIVE 5093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4103 Design and Analysis of Construction Operations
Prerequisites: CIVE 4273 with minimum grade of "C."
Description: This course introduces students to effective ways of modeling construction processes and technologies. It provides an investigation of quantitative methods used for the design and analysis of construction operations to maximize productivity and minimize resource idleness. It includes discussions on queueing theory, line-of-balance techniques, linear programming and simulation. Comprehensive group projects that involve modeling and analyzing actual construction operations will be integral parts of this course. Course is a senior elective. May not be used for degree credit with CIVE 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4113 Construction Business Management
Prerequisites: Senior standing.
Description: Fundamental theories and applied methods of financial management of construction companies. The spectrum of the present and future practice of business management at the construction company level. Basic construction business operations in the context of construction accounting, financial management, cash flow analysis, financial planning, and risk analysis. Course is a senior elective. May not be used for degree credit with CIVE 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4123 The Legal & Regulatory Environment of Civil Engineering
Prerequisites: Senior standing or permission of instructor.
Description: The U.S. and Oklahoma court systems. Tort law and labor law having an impact on engineering and construction. Union organization and activities. Government contracting and the laws governing it. Discussions of the Occupation Safety and Health Act and Americans with Disabilities Act. In-Depth look at environmental policy, laws, and regulations affecting engineering, including NEPA, CWA, SDWA, RCRA, CERCLA and CAA Water law. Course is a senior elective. May not be used for degree credit with CIVE 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4133 Construction Contracts and Specifications
Prerequisites: Senior standing.
Description: The nature of contracts. Contract documents. Master format. Principles of specification writing. Contract types. Bonds and insurance. Bidding. Subcontracting. Disputes and disputes resolution. Course is a senior elective. May not be used for degree credit with CIVE 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4143 Environmental Engineering Design
Prerequisites: Minimum grade of "C" in each; CIVE 3714 and CIVE 3833 and CIVE 3853 and CIVE 4833, and within last semester of program completion.
Description: Actors involved in the design of engineered environmental systems. Solving “real world” environmental engineering problems. Design experience using decision-making techniques, integrating and expanding upon current knowledge, and defending decisions made. Economic, environmental, social, and regulatory aspects of environmental engineering design. Capstone course. May not be used for degree credit with CIVE 4043.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 4153 Contract Administration
Prerequisites: Senior standing.
Description: Methods and techniques of tracking and control of construction projects. Evaluation of current research findings to contract implementation. Course is a senior elective. May not be used for degree credit with CIVE 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4163 Construction Equipment Management
Prerequisites: Senior standing.
Description: Analysis of construction equipment. Performance under various operating conditions. Application of engineering fundamentals to construction methods. Selection and costs of equipment, prediction of equipment production rates, and unit costs of work in place. Course is a senior elective. May not be used for degree credit with CIVE 5163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4183 Construction Estimating
Prerequisites: Senior standing, and concurrent prerequisite CIVE 4273 with minimum grade of "C."
Description: The construction industry, its makeup, operation, estimating, and bidding procedures. Theory and practice of estimating materials, labor, equipment, and overhead costs for various types of construction. Emphasis on preliminary cost estimates during the conceptual design phase of a construction project. May not be used for degree credit with CIVE 5183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4193 BIM for Construction
Prerequisites: Senior standing, and concurrent prerequisite CIVE 4273 with minimum grade of "C."
Description: The course focuses on advanced information systems used to control and predict project performance (cost and schedule) in construction. Building information Modeling is examined as a systems approach of integrating design and construction for the benefit of developing construction work packages, 4D simulations, clash detection, and the process of implementing BIM on an enterprise to project level. May not be used for degree credit with CIVE 5193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4243 Use and Design of Geosynthetics
Prerequisites: Senior standing and CIVE 3714 with minimum grade of "C."
Description: Description of types of geosynthetics available for engineering uses. Pertinent engineering properties required to design for various functions, basic design methodology for geosynthetics for various functions, and construction and performance considerations. May not be used for degree credit with CIVE 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4273 Construction Engineering and Project Management
Prerequisites: Senior standing and ENGR 1412 with minimum grade of "C."
Description: Principles and practice of construction engineering and project management. Project planning, development of cost estimates and project schedules, construction methods and fundamental terminology used in the engineering and construction industry. May not be used for degree credit with CIVE 5073.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 4283 Numerical Methods in Geotechnical Engineering
Prerequisites: CIVE 3714 with minimum grade of C.
Description: The course covers a brief review of some fundamental principles of finite element method and its application to problems in geotechnical engineering. Students will use computer programs to perform analysis of geotechnical earth structures including flow through porous media, unsaturated and expansive soils. Course is a senior elective. May not be used for degree credit with CIVE 5283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4293 Design and Analysis of Earth Retaining Structures
Prerequisites: CIVE 3714 with minimum grade of "C".
Description: Lateral earth pressure theories. Use of earth retaining structures in civil engineering construction. Design and analysis of gravity, sheet pile, soil nail, and MSE walls by hand calculation and with a computer program. Course is a senior elective. May not be used for degree credit with CIVE 5293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4303 Systems Analysis for Civil Engineers
Prerequisites: Senior standing and CIVE 3633 or concurrent enrollment.
Description: Synthesis of systems modeling and simulation techniques, mathematical optimization procedures, and evaluation tools of multi-attributed systems including utility theory and decision analysis. Mathematical optimization techniques in the areas of resource allocation, transportation and water resources systems planning, structural design, construction management, and environmental and ecological problems. Course is a senior elective. May not be used for degree credit with CIVE 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4313 Highway Traffic Operations
Prerequisites: Senior standing and CIVE 3633 or concurrent enrollment.
Description: Level of service, capacity and service volume concepts. Operational characteristics of uninterrupted-flow and interrupted-flow of traffic facilities. The 1985 HCM procedures for analyzing the capacity of freeways, multi-lane and two-lane rural highways, urban arterials, signalized and unsignalized street intersections, and transit and pedestrian facilities. Administrative and planning actions for congestion management. Design alternatives and improvement strategies for effective use of urban arterial street width. Course is a senior elective. May not be used for degree credit with CIVE 5313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4323 Civil Infrastructure Systems
Prerequisites: Senior standing and CIVE 3633 with minimum grade of “C”.
Description: The course presents a unified approach to the management of civil infrastructure systems. Topics of discussion include various aspects of asset management analytical methods, data collection technologies, life cycle cost, prioritization and optimization, climate change and sustainability. Types of infrastructure considered in the course include pavements (roads and airports), bridges, drainage and sewer systems, water supply systems, and power supply facilities. Course is a senior elective. May not be used for degree credit with CIVE 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4343 Urban Transportation Planning
Prerequisites: Senior standing and CIVE 3633 or concurrent enrollment.
Description: Determinants of demand for transportation and models for demand forecasting. Performance characteristics of transportation systems and models for performance. Quantitative analysis of multimodal transportation networks including prediction of flow patterns and service quality. Evaluation of social, environmental, and political impacts of transportation decisions. Application of systems analysis techniques to the generation, evaluation, and selection of alternative transportation systems. Course is a senior elective. May not be used for degree credit with CIVE 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4363 Design and Planning of Airports
Prerequisites: Senior standing and CIVE 3633 or concurrent enrollment.
Description: Nature of civil aviation. Aircraft characteristics and performance related to airport planning and design. Air traffic control and navigation systems. Basics of airport planning and airport demand forecasting. Analysis of airport capacity and delays. Runway length requirements. Configuration and geometric design of runways, taxiways, holding aprons, and landing areas. Airport lighting, marking, and signing. Drainage and noise control. Course is a senior elective. May not be used for degree credit with CIVE 5363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4373 Design of Traffic Control Systems
Prerequisites: Senior standing and CIVE 3633 or concurrent enrollment.
Description: Traffic control systems design, available technological options, and range of agency needs. Design of vehicle detectors, controllers, communications links, signal display hardware, and wiring. Development of timing plans using computer simulation models. Freeway surveillance and control: ramp metering, incident detection, and motorist information systems. Preparation of contractual documents and construction supervision. Course is a senior elective. May not be used for degree credit with CIVE 5373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4383 Geometric Design of Highways
Prerequisites: Senior standing and CIVE 3633 or concurrent enrollment.
Description: Geometric, functional, and aesthetic aspects of roadway design. Alignment, sight distance, at-grade intersections, interchanges, and freeway systems. Design tools and techniques. Course is a senior elective. May not be used for degree credit with CIVE 5383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4403 Advanced Strength of Materials
Prerequisites: Senior standing and CIVE 3413 with minimum grade of "C".
Description: General states of stress and strain, theories of failure, energy principles, beam bending, shear center, torsion of prismatic shafts, beams on elastic foundations, plates and shells, elastic stability. May not be used for degree credit with CIVE 5403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4413 Classical and Matrix Methods of Structural Analysis
Prerequisites: Senior standing and CIVE 3413 with minimum grade of "C".
Description: Advanced analysis of indeterminate frames, trusses and arches by classical, numerical, energy, and stiffness methods with emphasis on methods with emphasis on methods for hand computations and development of matrix analysis. May not be used for degree credit with CIVE 5413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4423 Matrix Analysis of Structures
Prerequisites: Minimum grade of "C" in CIVE 3413 and MATH 2163 and MATH 2233 and ENGR 1412.
Description: Matrix analysis of two- and three-dimensional trusses and frames. Development of member stiffness matrices. Assemblage of structure matrices by direct stiffness method. Linear and non-linear structural analysis theory and procedures. Implementation of matrix analysis methods in MATLAB and analysis of truss and frame systems using structural analysis software. Course is a senior elective. May not be used for degree credit with CIVE 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4483 Concrete Testing and Monitoring Methods
Prerequisites: Senior standing and CIVE 3623 with minimum grade of "C," or CIVE 3523 with minimum grade of "C."
Description: Standard and advanced concrete testing and monitoring methods used for strength assessment of concrete, along with other various material properties and integrity issues in the laboratory and in the field. Principles, applications and limitations, procedures, equipment operation and result interpretation are discussed for each destructive and non-destructive evaluation technique reviewed: mechanical, chemical, electrical, ultrasonic and acoustics, thermography, radiography. This course includes a laboratory session to develop manipulation skills and review concepts presented in lectures. Course is a senior elective. May not be used for degree credit with CIVE 5483.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 4493 Infrastructure Condition Assessment and Repair
Prerequisites: Senior standing and CIVE 3623 with minimum grade of "C," and CIVE 3523 with minimum grade of "C."
Description: The course provides guidelines on how to conduct a practical condition assessment of civil infrastructure, which includes discussions on performing condition surveys, preliminary and detailed investigations; along with material properties, distress features and associated causes, diagnostics testing; reporting findings and recommendations. It also includes a discussion in basic repair methods and materials. May not be used for degree credit with CIVE 5493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4513 Advanced Reinforced Concrete Design
Prerequisites: Senior standing and CIVE 3523 with minimum grade of "C".
Description: Advanced topics in reinforced concrete design with emphasis on frames, slabs and earthquake resistant structures. Course is a senior elective. May not be used for degree credit with CIVE 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4523 Advanced Steel Structure Design
Prerequisites: Senior standing and CIVE 3513 with minimum grade of "C".
Description: Advanced topics in steel design such as plastic design, plate girders, composite design, fatigue and fracture, stability and bracing design. Course is a senior elective. May not be used for degree credit with CIVE 5523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4533 Prestressed Concrete
Prerequisites: Senior standing and CIVE 3523 with minimum grade of "C".
Description: Design of simple and continuous prestressed concrete beams. Behavior under overload. Calculation of prestress losses and deflections. May not be used for degree credit with CIVE 5533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4553 Analysis and Design for Natural Hazards
Prerequisites: Minimum grade of "C" in CIVE 3523 OR ARCH 4343
Description: Course covers the concepts of natural hazard engineering design on structures. Effects of tornados and earthquakes on structures are analyzed. Students learn how to implement seismic, tornado, and wind loadings into structural design, using software programs, and according to ASCE and ACI codes. May not be used for degree credit with CIVE 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4563 Structural Dynamics
Prerequisites: Senior standing and minimum grade of "C" in CIVE 3413 and ENSC 2123.
Description: Analysis of linear, elastic damped and undamped systems with single and multiple degrees of freedom undergoing free forced vibration. Lumped and distributed mass systems. Computational techniques to numerically integrate the equations of motion. May not be used for degree credit with CIVE 5563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4573 Timber Design
Prerequisites: Senior standing and (CIVE 3513 or CIVE 3523 with minimum grade of "C").
Description: Design of structural timber members, assemblies, and connections in accordance with ANSA/AF&PA, NDS specifications. Course is a senior elective. May not be used for degree credit with CIVE 5573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4583 Advanced Construction Materials
Prerequisites: CIVE 3623 with minimum grade of “C.”
Description: Undergraduate elective course addresses advanced topics on fundamental material properties and related design criteria for products commonly used in civil construction: timber and engineered wood products, metals and alloys, polymers and fiber reinforced composites; and glass. Lectures will include material specific topics on: physical, chemical and mechanical properties; fabrication methods; use and applications; standards, testing and quality control measures; selection and design criteria. Course is a senior elective. May not be used for degree credit with CIVE 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4593 Finite Elemental Analysis of Solids and Structures
Prerequisites: Minimum of "C" or better in CIVE 3413 and MATH 2163 and MATH 2233. Senior standing.
Description: Introduction to the finite element method, focusing on applications related to civil engineering: approximate solutions of partial differential equations, spatial and temporal discretization methods, common element formulations, shape functions, isoparametric transformations, numerical integration, error analysis, equation assembly and solution algorithms, computer implementation, and use of commercial finite element analysis software. Applications to solid mechanics, structures, fluid mechanics, and heat transfer. Course is a senior elective. May not be used for degree credit with CIVE 5593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4603 Performance-Based Earthquake Engineering
Prerequisites: Minimum of "C" in CIVE 4553, OR (minimum of "C" in CIVE 3413 AND concurrent enrollment in CIVE 4563).
Description: Concepts of modern earthquake-resistant structural design. Overview of earthquake processes and loads on structures, and seismic analysis methods and standards adopted by structural engineers. Procedures of performance-based earthquake engineering, and guided research on cutting-edge performance-based structural design applications. Course is a senior elective. May not be used for degree credit with CIVE 5603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4653 Asphalt Materials and Mix Design
Prerequisites: Senior standing and CIVE 3623 with minimum grade of "C".
Description: Principles of asphalt concrete mix design including material characteristics and performance. Evaluation of Superpave mix design methods. Asphalt cements, rubberized asphalt polymer asphalts, emulsions, cutbacks, and aggregates. Laboratory sessions focused on the engineering properties of the materials discussed. May not be used for degree credit with CIVE 5653.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 4673 Concrete Materials and Mix Design
Prerequisites: Senior standing and CIVE 3623 with minimum grade of "C."
Description: Principles of concrete mix design, including material characteristics, strength and durability requirements, environmental effects and forensic analysis. ACI and PCA mix design procedures. Laboratory on theoretical and practical aspects of concrete technology. Course is a senior elective. May not be used for degree credit with CIVE 5673.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 4693 Pavement Design and Analysis
Prerequisites: Senior standing and minimum grade of "C" in CIVE 3633 and CIVE 3623.
Description: Principles of pavement design, including stress analyses, load and environmental effects, and material characteristics. AASHTO, PCA and AI methods of pavement design. Computer methods practical aspects of life cycle cost analyses and construction methods. May not be used for degree credit with CIVE 5693.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4711 Basic Soils Testing Laboratory
Prerequisites: Non-CIVE majors only, ENSC 2113 with minimum grade of "C".
Description: Laboratory measurements of the physical and mechanical properties of soils; grain size distribution, plasticity, permeability, compaction, compressibility, and shear strength.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Civil & Environ. Eng

CIVE 4723 Foundation Engineering
Prerequisites: Senior standing and CIVE 3714 with minimum grade of "C."
Description: Types of structural foundations including footings, mats, rafts, piles and drilled shafts. Site characteristics, exploration programs, field data, test results, construction materials and methods as basis for selection of type of foundation and design. Geotechnical design procedures and considerations. Course is a senior elective. May not be used for degree credit with CIVE 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4733 Soil Mechanics
Prerequisites: Senior standing and CIVE 3714 with minimum grade of "C."
Description: Application of soil mechanics principles and concepts in geotechnical areas of permeability and seepage, settlement analysis, bearing capacity, lateral earth pressures and retaining walls, slope stability, and metastable soils. Course is a senior elective. May not be used for degree credit with CIVE 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4743 Project Engineering and Management
Prerequisites: Senior standing and concurrent prerequisite CIVE 4273 with minimum grade of "C".
Description: Management of the design and construction of civil engineering projects. Topics include owner's study, formation of project teams, design coordination, construction, and project closeout. Course is a senior elective. May not be used for degree credit with CIVE 5143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4753 Engineering Soil Stabilization
Prerequisites: Senior standing and CIVE 3714 with minimum grade of "C."
Description: Theoretical and practical aspects of engineering soil stabilization as a method for improving and upgrading low quality and unstable soils for engineering purposes. Use of time, fly ash, portland cement, asphalt, and other physical and chemical admixtures. Application of deep foundation stabilization methods such as preloading, deep compaction, injection and reinforcement. Course is a senior elective. May not be used for degree credit with CIVE 5753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4773 Soil-Structure Interaction
Prerequisites: Senior standing and CIVE 3714 with minimum grade of "C."
Description: The mechanical interaction effects between soils and structures using suitable engineering procedures such as finite differences and finite element methods. Civil engineering problems where interaction effects are most dominant including grade beams (beams on elastic foundation), axially- and laterally-loaded piles, cantilever, and anchored sheet pile walls. Course is a senior elective. May not be used for degree credit with CIVE 5743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4833 Unit Operations in Environmental Engineering
Prerequisites: Minimum grade of "C" in CIVE 3813 AND (minimum grade of "C" in CIVE 2081 OR minimum grade of "C" in CHEM 1515)
Description: Fundamental principles of water and wastewater treatment, including basic theory and development of design parameters. Application of these to the design of unit operations and processes in various treatment plants. May not be used for degree credit with CIVE 5843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4853 Bioremediation of Organic Contaminants
Prerequisites: Senior standing and (minimum grade of "C" in CIVE 3843 or BAE 4314) and (minimum grade of "C" in CIVE 3813)
Description: Science and technologies for bioremediation of organic contaminants in soil, sediment and groundwater systems. Includes geochemical reactions and analysis, pollutant fate and transport modeling, microbial degradation mechanisms, natural attenuation, and measurements of success. May not be used for degree credit with CIVE 5853.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4863 Bioremediation of Inorganic Contaminants
Prerequisites: CIVE 4833 with minimum grade of "C" OR concurrent with instructor permission.
Description: Theory and design of advanced physical-chemical water and wastewater treatment processes applied to municipal, industrial, and hazardous waste situations. Topics include microbial dynamics, reactor analysis, and removal of nitrogen, sulfur, phosphorus, and metals. Previously titled "Advanced Unit Operations in Environmental Engineering". Course is a senior elective. May not be used for degree credit with CIVE 5863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4873 Air Pollution Control Engineering
Prerequisites: CIVE 3813 with minimum grade of "C."
Description: Causes, effects, and control of atmospheric pollution. Course is a senior elective. May not be used for degree credit with CHE 5873 or CIVE 5873.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4883 Introduction to Environmental Modeling
Prerequisites: Minimum grade of "C" in CIVE 3813 and CIVE 3833.
Description: Intended as an introductory course for senior undergraduate students to the fundamentals of environmental modeling. Develops material necessary to construct models capable of identifying contaminant distributions at future times and space for water and air pollution applications. Advanced topics such as stochastic modeling, ecological risk assessment, neural modeling and spatial statistical analysis among others will be presented according to the backgrounds and interests of the enrolled students. Course is a senior elective. May not be used for degree credit with CIVE 5833 and BAE 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4903 Microbiology for Engineers
Prerequisites: (BIOL 1113 OR BIOC 2344) with minimum grade of "C" and (CHEM 1515 OR CIVE 2081) with minimum grade of "C" and CIVE 3813 with minimum grade of "C".
Description: Microbiology relates to many aspects of engineering, primarily environmental engineering. The class will cover the roles of bacteria in water and wastewater treatment, the bioremediation of hazardous substances, the mechanisms of antibiotic resistance, the molecular tools for studying and tracking bacteria, and special topics with regards to bacteria in common engineered environments. Basic microbiology and biochemistry will be covered throughout the course providing necessary background. Course is a senior elective. May not be used for degree credit with CIVE 5903.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4913 Groundwater Hydrology
Prerequisites: Minimum grade of "C" in CIVE 3843.
Description: Theory of groundwater movement, storage, exploration and pumping tests. Design of groundwater recovery and recharge systems. Course is a senior elective. May not be used for degree credit with CIVE 5913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4923 Environ Risk Assessment
Prerequisites: Professional School and minimum grade of “C” in CIVE 3813 and STAT 4033 or STAT 4073 with minimum grade of “C”.
Description: Environmental risk assessment and management. Applies elements of statistics, probability and environmental simulation to determine the public health and ecological risks from activities of humans. May not be used for degree credit with CIVE 5823.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4933 Water Treatment
Prerequisites: CIVE 4833 with minimum grade of "C" or concurrent with instructor permission.
Description: Theory, design, and operation of water treatment plants. Sizing of various unit processes. Water treatment plant control procedures. Course is a senior elective. May not be used for degree credit with CIVE 5933.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4943 Risk and Failure Analysis of Dams
Prerequisites: CIVE Professional School.
Description: Analyzing, evaluating and managing risks to Dams and providing a rigorous, systematic, and thorough approach to sustain and support of safety aspects. Evaluating CUASI Data to support aspects of the environment near and around Dams. Using new technologies such as ArcInfo to provide solutions to problems. May not be used for degree credit with CIVE 5043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4953 Biological Waste Treatment
Prerequisites: CIVE 4833 with minimum grade of C.
Description: Fundamentals of microbial systems applied to waste treatment processes. Standard suspended-growth and fixed biofilm wastewater and sludge suspensions and treatment system design calculations. Course is a senior elective. May not be used for degree credit with CIVE 5953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4963 Open Channel Flow
Prerequisites: Minimum grade of "C" in CIVE 3833.
Description: Open channel hydraulics, energy and momentum concepts, resistance, channel controls and transitions, flow routing and sediment transport. Course is a senior elective. May not be used for degree credit with CIVE 5963.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4973 Concrete Durability
Prerequisites: Senior standing and CIVE 3623 with minimum grade of "C."
Description: This course investigates the mechanisms, test methods, and evaluation procedures for the primary mechanisms for durability issues in concrete. Emphasis is placed on providing a practical and theoretical overview of the topics. Special topics may be covered with the interest of the students. Course is a senior elective. May not be used for degree credit with CIVE 5273.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 4983 Residuals & Solid Waste Management
Prerequisites: CIVE 3813 with minimum grade of "C".
Description: Theory, design and operation of systems for handling, treatment, and disposal of process sludge (water treatment, wastewater treatment, industrial) and solid wastes. Potential material reclamation options. Course is a senior elective. May not be used for degree credit with CIVE 5883.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 4993 Modeling of Hydrological Systems
Prerequisites: Senior standing and minimum grade of "C" in CIVE 3833 and CIVE 3843.
Description: Identification and application of hydrological models. Includes statistical, physical, and mathematical modeling approaches to simulate hydrological processes from hillside to watershed scales. Students will conduct numerical experiments to model key hydrologic components, while learning to assess the impacts of hydrological perturbances on extreme hydrological events. Includes use of python, MATLAB, and GIS tools. Course is a senior elective. May not be used for degree credit with CIVE 5993.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5000 Master's Thesis
Description: A student studying for a master's degree will enroll in this course for a total of 6 credits if a thesis is to be written. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Civil & Environ. Eng

CIVE 5010 Civil Engineering Seminar
Description: Review of literature of major fields of civil engineering. Offered for variable credit, 1-3 credit hours, maximum of 15 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Civil & Environ. Eng

CIVE 5013 Aquatic Chemistry
Prerequisites: Graduate standing or instructor permission.
Description: Application of chemical principles to environmental problems. Chemical kinetics, chemical equilibrium, acid-base chemistry, development of pc-pH diagrams, coordination chemistry, precipitation and dissolution reactions, and oxidation-reduction reactions. Applications to environmental engineering systems and natural water chemistry is covered. Requires background understanding of basic introductory chemistry (i.e. CHEM 1414, CHEM 1515 or equivalent). May not be used for degree credit with CIVE 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5020 Civil Engineering Research
Prerequisites: Graduate standing and approval of major professor.
Description: Research and investigations other than thesis studies. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Civil & Environ. Eng

CIVE 5023 Engineering for Sustainability
Prerequisites: Graduate standing.
Description: Provides foundational understanding of sustainability and how it can be incorporated into engineering designs. Through hands-on activities and an overarching design project, students explore sustainability tools and frameworks that can be applied to future engineering projects. The goal is for students to leave this course as advocates for sustainability in engineering design, equipped with the skills to identify and recommend sustainable practices in their future careers. May not be used for degree credit with CIVE 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5030 Engineering Practice
Prerequisites: Approval of adviser.
Description: Professional supervised civil engineering practice involving authentic projects for which the student assumes a degree of professional responsibility. Activities must be approved in advance by the student's adviser and may consist of engineering experience on-campus or off-campus, or both. Periodic reports, both oral and written, are required as specified by the adviser. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Civil & Environ. Eng

CIVE 5033 GIS Applications for Water Resources
Prerequisites: Graduate standing.
Description: Application of theoretical and practical components of geographic information system for engineers. Digital mapping of water resources information, spatial coordinate systems and digital terrain analysis using digital elevation models. Analysis of a variety of spatial data in efficient and effective manner. Introduction of geospatial analytical algorithms to solve civil and environmental problems. Same course as ENVR 5033. May not be used for degree credit with CIVE 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5043 Risk and Failure Analysis of Dams
Prerequisites: Graduate standing or professional school.
Description: Analyzing, evaluating and managing risks to Dams and providing a rigorous, systematic, and thorough approach to sustain and support of safety aspects. Evaluating CUASI Data to support aspects of the environment near and around Dams. Using new technologies such as ArcInfo to provide solutions to problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5053 Transportation Geotechnics
Prerequisites: Graduate standing.
Description: This course focuses on the application of geotechnical engineering concepts to the analysis, design, and construction of transportation infrastructure. Topics covered include: soil classification systems, soil variability; subgrade evaluation procedures, repeated loading behavior of soils; soil compaction and field control; and subgrade stability for transportation facility engineering. May not be used for degree credit with CIVE 4053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5063 Introduction to Railroad Engineering
Prerequisites: Graduate standing.
Description: This course provides civil engineering students a technical transportation course in Railroad Engineering. It covers a wide spectrum of railway engineering, Including the basic principles, railroad design, construction, operation, evaluation and maintenance of rail infrastructure and networks. The students are expected to develop small group skills through team homework assignments and class interaction. May not be used for degree credit with CIVE 4063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5073 Construction Engineering and Project Management
Description: Principles and practice of construction engineering and project management. Project planning, development of cost estimates and project schedules, construction methods and fundamental terminology used in the engineering and construction industry. May not be used for degree credit with CIVE 4273.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 5080 Engineering Problems
Prerequisites: Permission of instructor.
Description: Problems of particular interest to graduate students in the field of civil engineering. This course meets the criteria for a creative component. Not to be included on thesis plans. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Civil & Environ. Eng

CIVE 5083 Applied Statistics for Civil Engineers
Prerequisites: Graduate standing.
Description: This course covers subjects including statistical fundamentals; continuous, count, discrete dependent variable models, random parameter models, and Bayesian modeling that are widely used in civil, particularly transportation engineering. May not be used for degree credit with CIVE 4083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5093 Transportation Safety and Analysis
Prerequisites: Graduate standing.
Description: This course introduces fundamental concepts for performing traffic safety analyses, including safety management systems, different safety countermeasures, development of statistical models with countermeasures and their effectiveness, economic analyses, and crash investigation. Students should be prepared to apply these important safety concepts in professional practice. May not be used for degree credit with CIVE 4093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5103 Design and Analysis of Construction Operations
Prerequisites: Graduate standing
Description: This course introduces students to effective ways of modeling construction processes and technologies. It provides an investigation of quantitative methods used for the design and analysis of construction operations to maximize productivity and minimize resource idleness. It includes discussions on queueing theory, line-of-balance techniques, linear programming and simulation. Comprehensive group projects that involve modeling and analyzing actual construction operations will be integral parts of this course. May not be used for degree credit with CIVE 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5113 Construction Business Management
Description: Fundamental theories and applied methods of financial management of construction companies. The spectrum of the present and future practice of business management at the construction company level. Basic construction business operations in the context of construction accounting, financial management, cash flow analysis, financial planning, and risk analysis. May not be used for degree credit with CIVE 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5123 The Legal and Regulatory Environment of Engineering
Prerequisites: Graduate standing.
Description: The U.S. and Oklahoma court systems. Tort law and labor law having an impact on engineering and construction. Union organization and activities. Government contracting and the laws governing it. Discussions of the Occupation Safety and Health Act and Americans with Disabilities Act. In-Depth look at environmental policy, laws, and regulations affecting engineering, including NEPA, CWA, SDWA, RCRA, CERCLA and CAA Water law. May not be used for degree credit with CIVE 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5133 Construction Contracts and Specifications
Description: The nature of contracts. Contract documents. Master format. Principles of specification writing. Contract types. Bonds and insurance. Bidding. Subcontracting. Disputes and disputes resolution. May not be used for degree credit with CIVE 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5143 Project Engineering and Management
Description: Management of the design and construction of civil engineering projects. Topics include owner's study, formation of project teams, design coordination, construction, and project closeout. May not be used for degree credit with CIVE 4743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5153 Contract Administration
Description: Methods and techniques of tracking and control of construction projects. Evaluation of current research findings to contract implementation. May not be used for degree credit with CIVE 4153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5163 Construction Equipment Management
Description: Analysis of construction equipment. Performance under various operating conditions. Application of engineering fundamentals to construction methods. Selection and costs of equipment, prediction of equipment production rates, and unit costs of work in place. May not be used for degree credit with CIVE 4163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5183 Construction Estimating
Prerequisites: Graduate standing and CIVE major.
Description: The construction industry, its makeup, operation, estimating, and bidding procedures. Theory and practice of estimating, materials, labor, equipment, and overhead costs for various types of construction. Emphasis on preliminary cost estimates during the conceptual design phase of a construction project. May not be used for degree credit with CIVE 4183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5193 BIM for Construction
Prerequisites: CIVE major and graduate standing.
Description: The course focuses on advanced information systems used to control and predict project performance (cost and schedule) in construction. Building information modeling is examined as a systems approach of integrating design and construction for the benefit of developing construction work packages, 4D simulations, clash detection, and the process of implementing BIM on an enterprise to project level. May not be used for degree credit with CIVE 4193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5203 Pavement Rehabilitation, Management and Safety
Prerequisites: Graduate standing or senior standing with instructor approval.
Description: Understand and perform pavement evaluations of function, structure, surface condition, and surface safety and learn various types of equipment for evaluating pavement function, structure, and surface condition and safety. Describe techniques for rehabilitation of flexible and rigid pavements, and overall objectives and major components of a pavement management system. Understand and explain the basic techniques of safety analysis based on pavement surface data.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5243 Use and Design of Geosynthetics
Prerequisites: Graduate student.
Description: Description of types of geosynthetics available for engineering uses. Pertinent engineering properties required to design for various functions, basic design methodology for geosynthetics for various functions, and construction and performance considerations. May not be used for degree credit with CIVE 4243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5253 Sensors and their Applications for Pavement
Prerequisites: Graduate standing or senior standing with instructor approval.
Description: Sensor Principles of Falling Weight Deflectometer (FWD), Rolling Weight Deflectometer (RWD) and Traffic Speed Deflectometer (TSD); 2D and 3D laser imaging as used in pavement surface condition survey; Laser rangers and accelerometers for pavement longitudinal profile; Friction and texture measurement of pavement surface; New software and mobile tools for presenting sensor data with HTML5; 3D visualization and database management with pavement sensor data; Inertial navigation system and high-precision gyro for pavement data positioning; LIDAR and its usage for infrastructure management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5273 Concrete Durability
Prerequisites: CIVE 5673 Concrete Mixture Design and graduate standing or permission of instructor.
Description: This course investigates the mechanisms, test methods, and evaluation procedures for the primary mechanisms for durability issues in concrete. Emphasis is placed on providing a practical and theoretical overview of the topics. Special topics may be covered with the interest of the students.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 5283 Numerical Methods in Geotechnical Engineering
Prerequisites: Graduate standing.
Description: The course covers a brief review of some fundamental principles of finite element method and its application to problems in geotechnical engineering. Students will use computer programs to perform analysis of geotechnical earth structures including flow through porous media, unsaturated and expansive soils. Course requires an undergraduate geotechnical engineering course (CIVE 3714 or equivalent). May not be used for degree credit with CIVE 4283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5293 Design and Analysis of Earth Retaining Structures
Prerequisites: CIVE major and graduate standing.
Description: Lateral earth pressure theories. Use of earth retaining structures in civil engineering construction. Design and analysis of gravity, sheet pile, soil nail, and MSE walls by hand calculation and with a computer program. May not be used for degree credit with CIVE 4293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5303 Systems Analysis for Civil Engineers
Description: Synthesis of systems modeling and simulation techniques, mathematical optimization procedures, and evaluation tools of multi-attributed systems including utility theory and decision analysis. Mathematical optimization techniques in the areas of resource allocation, transportation and water resources systems planning, structural design, construction management, and environmental and ecological problems. May not be used for degree credit with CIVE 4303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5313 Highway Traffic Operations
Description: Level of service, capacity and service volume concepts. Operational characteristics of uninterrupted-flow and interrupted-flow traffic facilities. The 1985 HCM procedures for analyzing the capacity of freeways, multilane and two-lane rural highways, urban arterials, signalized and unsignalized street intersections, and transit and pedestrian facilities. Administrative and planning actions for congestion management. Design alternatives and improvement strategies for effective use of urban arterial street width. May not be used for degree credit with CIVE 4313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5323 Civil Infrastructure Systems
Prerequisites: Graduate student.
Description: The course presents a unified approach to the management of civil infrastructure systems. Topics of discussion include various aspects of asset management: analytical methods, data collection technologies, life cycle cost, prioritization and optimization, climate change and sustainability. Types of infrastructure considered in the course include pavements (roads and airports), bridges, drainage and sewer systems, water supply systems, and power supply facilities. May not be used for degree credit with CIVE 4323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5333 Reliability and Risk of Components and Systems
Prerequisites: Graduate standing.
Description: This course provides a thorough treatment of the techniques and theories for probabilistic failure analysis of components and systems considering uncertainties in structural resistance and load effects. Reliability-based design and computer-simulation methods for reliability analysis are also covered. Quantitative risk assessment for engineering systems will be discussed. In addition to the focus on the fundamentals of structural reliability, emphasis will be placed on practical computer implementation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5343 Urban Transportation Planning
Description: Determinants of demand for transportation and models for demand forecasting. Performance characteristics of transportation systems and models for performance. Quantitative analysis of multimodal transportation networks including prediction of flow patterns and service quality. Evaluation of social, environmental, and political impacts of transportation decisions. Application of systems analysis techniques to the generation, evaluation, and selection of alternative transportation systems. May not be used for degree credit with CIVE 4343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5363 Design and Planning of Airports
Description: Nature of civil aviation. Aircraft characteristics and performance related to airport planning and design. Air traffic control and navigation systems. Basics of airport planning and airport demand forecasting. Analysis of airport capacity and delays. Runway length requirements. Configuration and geometric design of runways, taxiways, holding aprons, and landing areas. Airport lighting, marking, and signing. Drainage and noise control. May not be used for degree credit with CIVE 4363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5373 Design of Traffic Control Systems
Description: Traffic control systems design, available technological options, and range of agency needs. Design of vehicle detectors, controllers, communications links, signal display hardware, and wiring. Development of timing plans using computer simulation models. Freeway surveillance and control: ramp metering, incident detection, and motorist information systems. Preparation of contractual documents and construction supervision. May not be used for degree credit with CIVE 4373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5383 Geometric Design of Highways
Description: Geometric, functional, and aesthetic aspects of roadway design. Alignment, sight distance, at-grade intersections, interchanges, and freeway systems. Design tools and techniques. May not be used for degree credit with CIVE 4383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5403 Advanced Strength of Materials
Description: General states of stress and strain, theories of failure, energy principles, beam bending, shear center, torsion of prismatic shafts, beams on elastic foundations, plates and shells, elastic stability. May not be used for degree credit with CIVE 4403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5413 Classical and Matrix Methods of Structural Analysis
Prerequisites: Graduate standing.
Description: Advanced analysis of indeterminate frames, trusses and arches by classical, numerical, energy, and stiffness methods with emphasis on methods for hand computations and development of matrix analysis. Students are expected to have undergraduate structural analysis (CIVE 3413 or equivalent) as a prerequisite. May not be used for degree credit with CIVE 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5423 Matrix Analysis of Structures
Prerequisites: Graduate standing.
Description: Matrix analysis of two- and three-dimensional trusses and frames. Development of member stiffness matrices. Assemblage of structure matrices by direct stiffness method. Computer programs for structural analysis. Students are expected to have background in undergraduate structural analysis (CIVE 3413 or equivalent) as a prerequisite. May not be used for degree credit with CIVE 4423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5433 Energy Methods in Applied Mechanics
Prerequisites: Graduate standing or admission to CIVE professional school required and CIVE 3413 and MATH 2233 or MAE 3323.
Description: Advanced structural mechanics from the standpoint of virtual work; energy principles and variational calculus applied to the analysis of structures, mechanisms, dynamics, and vibrations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5453 Engineering Analysis
Description: Advanced, classical mathematical skills for engineers. Dimensional Analysis, General Tensor Analysis, Curvilinear Coordinates, Partial Differential Equations, Perturbation Theory, Integral Equations, Special Functions, Eigen Function Analysis, Integral Transform Methods, Variational Methods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5473 Steel Plastic Design
Prerequisites: Graduate standing or CIVE 3413 Structural Analysis and instructor approval.
Description: This course is for incoming graduate students that are not familiar with LRFD AISC based steel design. Topics typically covered in the undergraduate course are covered with additional topics.
Credit hours: 3
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 5483 Concrete Testing and Monitoring Method
Prerequisites: Graduate student.
Description: Standard and advanced concrete testing and monitoring methods used for strength assessment of concrete, along with other various material properties and integrity issues in the laboratory and in the field. Principles, applications and limitations, procedures, equipment operation and result interpretation are discussed for each destructive and non-destructive evaluation technique reviewed: mechanical, chemical, electrical, ultrasonic and acoustics, thermography, radiography. This course includes a laboratory session to develop manipulation skills and review concepts presented in lectures. May not be used for degree credit with CIVE 4483.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 5493 Infrastructure Condition Assessment and Repair
Prerequisites: Graduate student.
Description: The course provides guidelines on how to conduct a practical condition assessment of civil infrastructure, which includes discussions on performing condition surveys, preliminary and detailed investigations; along with material properties, distress features and associated causes, diagnostics testing; reporting findings and recommendations. It also includes a discussion in basic repair methods and materials. May not be used for degree credit with CIVE 4493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5503 Computer-Aided Structural Analysis and Design
Prerequisites: Graduate standing or admission to CIVE professional school required and CIVE 3413, CIVE 3513, CIVE 3523 (or concurrent enrollment); or permission of instructor.
Description: Major comprehensive design experience. Promotion of a design office atmosphere in using a team approach. Industry practitioners provide design projects and critique results. Analysis and design of complex structures and preparation of contract documents and drawings. Emphasis on modern computer-based computation and presentation tools.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5513 Advanced Reinforced Concrete Design
Prerequisites: Graduate standing.
Description: Advanced topics in reinforced concrete design with emphasis on frames, slabs, and earthquake-resistant structures. Students are expected to have background on reinforced concrete design (CIVE 3523 or equivalent) as a prerequisite. May not be used for degree credit with CIVE 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5523 Advanced Steel Structure Design
Prerequisites: Graduate standing.
Description: Advanced topics in steel design such as plastic design, plate girders, composite design, fatigue and fracture, stability, and bracing design. Students are expected to have background on steel design (CIVE 3513 or equivalent) as a prerequisite. May not be used for degree credit with CIVE 4523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5533 Prestressed Concrete
Prerequisites: Graduate standing.
Description: Design of simple and continuous prestressed concrete beams. Behavior under overload. Calculation of prestress losses and deflections. Students are expected to have background in reinforced concrete design (CIVE 3523 or equivalent) as a prerequisite. May not be used for degree credit with CIVE 4533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5543 Bridge Design
Prerequisites: CIVE 3513 AND CIVE 3523.
Description: Structural design of steel and concrete highway bridges, including bridge types, parts of a bridge, loads and load distribution, analysis, design, and bridge rating. Emphasis on topics of special interest to students.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5553 Analysis and Design for Natural Hazards
Prerequisites: Graduate standing.
Description: Course covers the concepts of natural hazard engineering design on structures. Effects of tornadoes and earthquakes on structures are analyzed. Students learn how to implement seismic, tornado, and wind loadings into structural design, using software programs, and according to ASCE and ACI codes. Students are expected to have background courses on concrete design (CIVE 3523 or equivalent) and structural analysis (CIVE 3413 or equivalent) as a prerequisite. May not be used for degree credit with CIVE 4553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5563 Structural Dynamics
Prerequisites: Graduate standing.
Description: Analysis of linear, elastic damped and undamped systems with single and multiple degrees of freedom undergoing free and forced vibration. Lumped and distributed mass systems. Computational techniques to numerically integrate the equations of motion. Students are expected to have background in elementary dynamics (ENSC 2123 or equivalent) and structural analysis (CIVE 3413 or equivalent) as prerequisites. May not be used for degree credit with CIVE 4563. Course previously offered as CIVE 6433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5573 Timber Design
Prerequisites: Graduate standing required.
Description: Design of structural timber members, assemblies, and connections in accordance with ANSA/AF&PA, NDS specifications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng
Additional Fees: CIVE 5573 Engineer Equip Use fee of $100 applies.

CIVE 5583 Advanced Construction Materials
Prerequisites: Graduate student.
Description: The course addresses advanced topics on fundamental material properties and related design criteria for products commonly used in civil construction: timber and engineered wood products, metals and alloys, polymers and fiber reinforced composites; and glass. The lectures will include material specific topics on: physical, chemical and mechanical properties; fabrication methods; use and applications; standards, testing and quality control measures; selection and design criteria. May not be used for degree credit with CIVE 4583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5593 Finite Elemental Analysis of Solids and Structures
Prerequisites: Graduate standing.
Description: Introduction to the finite element method, focusing on applications related to civil engineering: approximate solutions of partial differential equations, spatial and temporal discretization methods, common element formulations, shape functions, isoparametric transformations, numerical integration, error analysis, equation assembly and solution algorithms, computer implementation, and use of commercial finite element analysis software. Applications to solid mechanics, structures, fluid mechanics, and heat transfer. May not be used for degree credit with CIVE 4593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5603 Performance-Based Earthquake Engineering
Prerequisites: Graduate standing.
Description: Concepts of modern earthquake-resistant structural design. Overview of earthquake processes and loads on structures, and seismic analysis methods and standards adopted by structural engineers. Procedures of performance-based earthquake engineering, and guided research on cutting-edge performance-based structural design applications. Students recommended to have background (or corequisite enrollment) in structural dynamics and/or in analysis and design for natural hazards. May not be used for degree credit with CIVE 4603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5653 Asphalt Materials and Mix Design
Prerequisites: CIVE 3623 or consent of instructor.
Description: Principles of asphalt concrete mix design including material characteristics and performance. Evaluation of Hveem and Marshall mix design methods. Asphalt cements, rubberized asphalt polymer asphalts, emulsions, cutbacks, and aggregates. Laboratory sessions focused on the engineering properties of the materials discussed.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 5673 Concrete Materials and Mix Design
Prerequisites: Senior or graduate standing.
Description: Principles of concrete mix design, including material characteristics, strength and durability requirements, environmental effects and forensic analysis. ACI and PCA mix design procedures. Laboratory on theoretical and practical aspects of concrete technology.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 5693 Pavement Design and Analysis
Prerequisites: CIVE 3633 or consent of instructor.
Description: Principles of pavement design, including stress analyses, load and environmental effects, and material characteristics. AASHTO, PCA and AI methods of pavement design. Computer methods. Practical aspects of life cycle cost analyses and construction methods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5713 Soil Mechanics
Prerequisites: CIVE 3713 and CIVE 4711.
Description: Application of soil mechanics principles and concepts in geotechnical areas of permeability and seepage, settlement analysis, bearing capacity, lateral earth pressures and retaining walls, slope stability, and metastable soils. May not be used for degree credit with CIVE 4733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5723 Foundation Engineering
Description: Types of structural foundations including footings, mats, rafts, piles and drilled shafts. Site characteristics, exploration programs, field data, test results and construction materials and methods as basis for selection of type of foundation and design. Geotechnical design procedures and considerations. May not be used for degree credit with CIVE 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5733 Rock Mechanics in Engineering Design and Construction
Prerequisites: Undergraduate courses in soils and geology.
Description: Stresses, strength variations, and deformational behavior of rock. Engineering classification of rock. Methods of field and laboratory measurement of the engineering properties of rock. Rock mechanics consideration in the design and construction of engineering works.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5743 Soil-Struc Interaction
Description: The mechanical interaction effects between soils and structures using suitable engineering procedures such as finite differences and finite element methods. Civil engineering problems where interaction effects are most dominant including grade beams (beams on elastic foundation), axially- and laterally-loaded piles, cantilever, and anchored sheet pile walls. May not be used for degree credit with CIVE 4773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5753 Engineering Soil Stabilization
Description: Theoretical and practical aspects of engineering soil stabilization as a method for improving and upgrading low quality and unstable soils for engineering purposes. Use of lime, fly ash, portland cement, asphalt, and other physical and chemical admixtures. Application of deep foundation stabilization methods such as preloading, deep compaction, injection and reinforcement. May not be used for degree credit with CIVE 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5800 Environmental Engineering Seminar
Prerequisites: Graduate standing and permission of instructor.
Description: Course is a seminar series for graduate students in the Environmental Engineering program. Seminars will be given by the students in the course and by guest speakers. Through presentations using logical and evaluations, students will learn a breadth of topics in Environmental Engineering and related fields, and will learn and practice presentation skills.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5803 Essentials of Environmental Engineering
Prerequisites: Graduate student standing.
Description: Fundamentals of environmental chemistry, biogeochemical cycles, materials and energy balances, water quality, solid waste, air pollution, global climate change, sustainability, and risk assessment. Techniques for water and wastewater treatment, solid and hazardous waste management, and air pollution abatement. May not be used for degree credit with CIVE 3813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5813 Environmental Laboratory Analysis
Prerequisites: Graduate standing or permission of instructor.
Description: Analytical procedures for water and waste water contaminants. Emphasis on the chemical theory of procedures, analytical work and an understanding of the significance or need for such laboratory data for surface and groundwater management and water and wastewater treatment processes and design. May not be used for degree credit with CIVE 3853.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Civil & Environ. Eng

CIVE 5823 Environmental Risk Assessment and Management
Prerequisites: Graduate standing or permission of instructor.
Description: Environmental risk assessment and management. Applies elements of statistics, probability and environmental simulation to determine the public health and ecological risks from activities of humans. May not be used for degree credit with CIVE 4923.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5833 Introduction to Environmental Modeling
Description: Intended as an introductory course for graduate and senior undergraduate students to the fundamentals of environmental modeling. Develops material necessary to construct models capable of identifying contaminant distributions at future times and space for water and air pollution applications. Advanced topics such as stochastic modeling, ecological risk assessment, neural modeling and spatial statistical analysis among others will be presented according to the backgrounds and interests of the enrolled students. In part, the course is designed as the "Physical Science" component for MS students in the Environmental Sciences program. May not be used for degree credit with CIVE 4883.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5843 Unit Operations in Environmental Engineering
Description: Fundamental principles of water and wastewater treatment, including basic theory and development of design parameters. Application of these to the design of unit operations and processes in various treatment plans. May not be used for degree credit with CIVE 4833. CIVE 5843 was used to denote Hydrology II prior to 2004.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5853 Bioremediation of Organic Contaminants
Prerequisites: Graduate standing.
Description: Science and technologies for bioremediation of organic contaminants in soil, sediment and groundwater systems. Includes geochemical reactions and analysis, pollutant fate and transport modeling, microbial degradation mechanisms, natural attenuation, and measurements of success. Course requires a familiarity with differential equations and introductory groundwater hydrology. May not be used for degree credit with CIVE 4853.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5863 Bioremediation of Inorganic Contaminants
Prerequisites: Graduate standing required.
Description: Theory and design of advanced physical-chemical water and wastewater treatment processes applied to municipal, industrial, and hazardous waste situations. Topics include microbial dynamics, reactor analysis, and removal of nitrogen, sulfur, phosphorus, and metals. Previously titled "Advanced Unit Operations in Environmental Engineering". May not be used for degree credit with CIVE 4863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5873 Air Pollution Control Engineering
Description: Causes, effects, and control of atmospheric pollution. Same course as CHE 5873. May not be used for degree credit with CIVE 4873.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5883 Residuals and Solid Waste Management
Prerequisites: Graduate standing or admission to CIVE professional school required, or permission of instructor.
Description: Theory, design and operation of systems for handling, treatment, and disposal of process sludge (water treatment, wastewater treatment, industrial) and solid wastes. Potential material reclamation options. May not be used for degree credit with CIVE 4983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5903 Microbiology for Engineers
Prerequisites: Graduate standing or instructor permission.
Description: Roles of bacteria in water and wastewater treatment, the bioremediation of hazardous substances, the mechanisms of antibiotic resistance, the molecular tools for studying and tracking bacteria, and other special topics with regards to bacteria in common engineered environments. Basic microbiology and biochemistry will be covered. Students expected to have basic biology (i.e., BIOL 1113 or equivalent) as a prerequisite. May not be used for degree credit with CIVE 4903.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5913 Groundwater Hydrology
Prerequisites: Graduate standing.
Description: Theory of groundwater movement, storage, exploration and pumping tests. Design of groundwater recovery and recharge systems. Students are expected to have understanding of undergraduate level hydrology as a prerequisite (i.e., CIVE 3843 or equivalent). May not be used for credit with CIVE 4913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5933 Water Treatment
Description: Theory, design, and operation of water treatment plants. Sizing of various unit processes. Water treatment plant control procedures. May not be used for degree credit with CIVE 4933.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5953 Biological Waste Treatment
Description: Fundamentals of microbial systems applied to waste treatment processes. Standard suspended-growth and fixed biofilm wastewater and sludge suspensions and treatment system design calculations. May not be used for degree credit with CIVE 4953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5963 Open Channel Flow
Prerequisites: Graduate standing
Description: Open channel hydraulics, energy and momentum concepts, resistance, channel controls and transitions, flow routing, and sediment transport. Students are expected to have background knowledge of applied hydraulics (i.e. CIVE 3833 or equivalent) as a prerequisite. May not be used for degree credit with CIVE 4963.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5973 Stormwater Management and Green Infrastructure
Prerequisites: Graduate student standing.
Description: Covers stormwater management tools and techniques during construction and post-development. Topics include rules and regulations, erosion processes, sedimentation, erosion and sediment control, and green infrastructure. Introduction to software for stormwater management. May not be used for degree credit with CIVE 4073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 5993 Modeling of Hydrological Systems
Prerequisites: Graduate standing required.
Description: Identification and application of hydrological models. Includes statistical, physical, and mathematical modeling approaches to simulate hydrological processes from hillside to watershed scales. Students will conduct numerical experiments to model key hydrologic components, while learning to assess the impacts of hydrological perturbances on extreme hydrological events. Includes use of python, MATLAB, and GIS tools. Graduate standing required. May not be used for degree credit with CIVE 4993.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 6000 PhD Research Dissertation
Description: Independent research under the direction of a member of the graduate faculty by students working beyond the level of Master of Science degree. Offered for variable credit, 1-16 credit hours, maximum of 30 credit hours.
Credit hours: 1-16
Contact hours: Contact: 1-16 Other: 1-16
Levels: Graduate
Schedule types: Independent Study
Department/School: Civil & Environ. Eng

CIVE 6010 Seminar
Prerequisites: Consent of instructor and approval of the student's advisory committee.
Description: Analytical studies with suitable reports on problems in one or more of the subfields in civil engineering by students working beyond the level of Master of Science degree. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Civil & Environ. Eng

CIVE 6403 Theory of Elasticity
Prerequisites: Graduate standing.
Description: Stress, strain, and deformation analysis of two- and three-dimensional elastic continua. Propagation of stress waves through elastic continua.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 6413 Plate and Shell Structures
Prerequisites: Graduate standing and CIVE 5403, or permission of instructor.
Description: Bending of thin plate structures to include rectangular and circular plates. Analysis of orthotropic plates by classical and numerical methods. Introduction to shell bending theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 6434 Finite Element Analysis
Prerequisites: Graduate standing and permission of instructor.
Description: Finite elements: formulation techniques, weighted residuals, variational techniques, shape functions and element types, isoparametric elements, convergence criteria, error analysis, and programming techniques. Applications to solid mechanics, structures, fluid mechanics, and heat transfer are discussed.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 6553 Natural Hazards Engineering
Prerequisites: Graduate standing and CIVE 5563.
Description: Performance of structural systems exposed to extreme loadings from natural hazard events. The response, analysis, and design of structures exposed to earthquakes, wind, flood, and fire loadings are considered. Advanced analytical, computational, and experimental techniques. Current building code specifications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 6843 Stochastic Methods in Hydrology
Prerequisites: Graduate standing and STAT 4073 or STAT 4033.
Description: Stochastic and statistical hydrologic analyses of surface water and ground water systems. Analyses of urban and rural drainage and detention systems. Same course as BAE 6313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

CIVE 6923 Industrial Wastes Engineering
Prerequisites: Graduate standing or permission of instructor.
Description: Theory and methods of waste minimization, waste product reduction or reuse; process changes and treatment of residuals to reduce volume and toxicity of industrial wastes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Civil & Environ. Eng

College of Professional Studies (CPS)

CPS 3010 Special Topics in Professional Studies
Description: This course introduces students to current issues and topics related to professional studies — offerings are on a limited basis. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Professional Studies

CPS 3013 Inclusive Leadership
Description: Development of an inclusive workplace using organizational development principles with study of major trends, the case for inclusion and diversity and the importance of both empathy and psychological safety.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Undergraduate
Schedule types: Discussion, Independent Study, Combined lecture disc & IS, Lecture
Department/School: Professional Studies

CPS 3250 Credit for Prior Learning
Description: College-level learning can take place outside of the traditional college classroom. Through Prior Learning Assessment and portfolio review, students can earn credit toward their degree by documenting the knowledge they have gained during years of work and life-long learning.
Credit hours: 1-24
Contact hours: Contact: 1-24 Other: 1-24
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Professional Studies

CPS 3513 Experiential Learning & Civic Engagement
Description: Integrative and interdisciplinary focus on the various models, definitions and exploration in experiential learning, effective civic involvement, and the impact on the workplace.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Undergraduate
Schedule types: Discussion, Independent Study, Combined lecture disc & IS, Lecture
Department/School: Professional Studies

CPS 4013 Organizational Leadership
Description: Using simulation and case studies, an in-depth analysis of organizational leadership within the workplace will be discussed including possible interventions and solutions.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Undergraduate
Schedule types: Discussion, Independent Study, Combined lecture disc & IS, Lecture
Department/School: Professional Studies

CPS 4213 Data Driven Decision Making
Prerequisites: 3 hours of MATH or STAT with "A" designation.
Description: This course presents an exploration of the principles and practices of data-driven decision-making within various organizational contexts. Students engage in a study of data collection, analysis, interpretation, and application, enabling them to understand informed and strategic decisions based on quantitative insights. May not be used for degree credit with BADM 2233, MSIS 2233 and MSIS 3223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

CPS 4850 Special Topics in Research
Description: Special topics course with variable content related to research in professional studies. Topics include relevant issues/practices in professional studies. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours. Offered on a limited basis.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Professional Studies

CPS 4990 Internship in Professional Studies
Prerequisites: Permission of instructor.
Description: Directed internship experience or practicum in a professional work environment. This internship experience will provide experience beyond that available in the classroom. Offered for variable credit, 1-15 hours, maximum of 15 hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Professional Studies

Communication Sci & Disorders (CDIS)

CDIS 1013 Brain Works (N)
Description: This course will teach students how to tap into their brain power to be a successful student. Basic neural anatomy and physiology, techniques to assist in test taking, socialization, critical thinking, memory, stress relief, and daily problem solving.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D
General Education and other Course Attributes: Natural Science Reasoning

CDIS 2013 Facts and Fiction About Communication Disorders (D)
Description: Overview and examination of communication disorders as portrayed in media (movies, books, etc.), dispelling myths and misconceptions. Discussion and practice with ways to be a respectful, successful communicator with people of different backgrounds, life experiences, and communication challenges.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D
General Education and other Course Attributes: Diversity

CDIS 2033 Deaf Communication and Education (D)
Description: Issues in communication and education for children with hearing loss (communication options, schooling options, assistive technology, cochlear implants, language development, literacy, socializing) and introduction to Deaf culture and American Sign Language. Awareness of the breadth of challenges and options facing parents and educators of children with hearing loss. Previously offered as CDIS 4033, CDIS 4132, and SPTH 4132.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D
General Education and other Course Attributes: Diversity

CDIS 2223 Speech and Language Development
Description: Discussion of current theories and research on typical language development over the lifespan. Normal acquisition of language (e.g. phonology); speech and language milestones; biological, cognitive, and social bases; description of dialect variations, second language acquisition; atypical language development; and relationship between spoken and written language. Previously offered as CDIS 3223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 2313 Introduction to Communication Disorders
Description: Introduction of communication impairments across the lifespan (speech, language and hearing disorders). Including their neuromuscular bases; assessment and treatment; and professions related to assessment and treatment. Open to all university students. Previously offered as CDIS 3213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 2890 Honors Add-on
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental introductory honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated course(s).
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D
General Education and other Course Attributes: Honors Credit

CDIS 3113 Communication Disorders in Children
Prerequisites: A grade of "C" or higher in CDIS 2313 and (CDIS 2223 or CDIS 3223).
Description: Assessment and treatment of childhood communication disorders including autism, cerebral palsy, articulation and phonological disorders (speech sounds and their normal acquisition, common phonological errors), language disorders, fluency disorders, nonverbal and minimally verbal children, children using AAC, voice disorders and communication disorders in school-age children. Same course as CDIS 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 3123 Audiology Diagnosis
Prerequisites: CDIS 3203 with a grade of "C" or higher.
Description: Introduction to the profession of audiology, anatomy and physiology of the auditory system, types of hearing loss, hearing disorders, and clinical tests used in the diagnosis of children and adults with hearing loss. Previously offered as SPTH 3123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 3203 Anatomy and Physiology of the Speech Mechanism
Prerequisites: A grade of "C" or higher in BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: Overview of the structure and function of the skeletal, muscular, respiratory, phonatory, articulatory, auditory, and nervous system involved in the speech communication processes. Previously offered as CDIS 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 3313 Phonetics
Description: The analysis and description of speech at the segmental and suprasegmental levels. Development of students' perceptual and analytical skills in speech sound production. Practice using the International Phonetic Alphabet for broad and narrow transcription. Overview of the speech production mechanism and process. Previously offered as CDIS 2213 and SPTH 2213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 3413 Introduction to Research
Prerequisites: A grade of "C" or higher in STAT 2013, STAT 2053 or STAT 4053.
Description: Introduction to research process and evidence based practice in communication disorders, including how to locate and evaluate research articles, how to find possible research topics, issues related to conduction of experiment, and how to determine treatment effectiveness.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4010 Clinic Practicum
Prerequisites: Consent of instructor.
Description: Supervised clinical practicum or internship in speech-language pathology and audiology. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Communications Sci & D

CDIS 4013 Diagnostics
Prerequisites: A grade of "C" or higher in CDIS 3213 and CDIS 3223.
Description: This course addresses principles and methods of assessment and diagnostics for people with communication disorders. The course includes test construction and design, reliability, validity, and other issues related to criterion and norm-referenced testing. Issues regarding diagnostic criteria and classification systems of communication disorders are also addressed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4023 Clinical Methods and Issues
Prerequisites: A grade of “C” or higher in CDIS 2213, CDIS 2223 and CDIS 3313.
Description: Fundamental process and procedures of clinical practicum, report writing, goal selection; production, assessment and recording of speech and language behaviors; development of interpersonal skills with clients, families, and other professionals; problem solving skills; professional organization and credentialing requirements and includes clinical observation. Previously offered as CDIS 4022.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4043 Audiology Clinical Methods
Description: Training in audiology clinic methods. Focus on roles, regulations, and responsibilities of audiology assistants. Includes audiology basics, providing patient care, clinic maintenance, ethics, hearing loss prevention, amplification and device maintenance, professional practices in health care and education settings, and communication/collaboration/teaming.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4073 Introduction to Sociolinguistics
Description: The study of how languages and varieties vary in social contexts and how they are regarded. Same course as ENGL 4073. May not be used for degree credit with ENGL 5173 or CDIS 5673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4133 Audiology Treatment
Prerequisites: A grade of “C” or higher in CDIS 3123.
Description: Review of hearing aids, implantable hearing devices, medical management of hearing loss, aural rehabilitation, and other clinical treatments for children and adults with hearing loss. Previously offered as SPTH 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4313 Speech Science
Prerequisites: A grade of “C” or higher in CDIS 3313, CDIS 3203 and any PHYS course.
Description: Scientific bases of the acoustic parameters, the perceptual and productive processes of speech, and the interrelationships of those factors during speech communication. Previously offered as SPTH 4313. May not be used for degree credit with CDIS 5313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4423 Neural Bases of Speech and Language (N)
Prerequisites: A grade of "C" or higher in CDIS 3203.
Description: Neuroanatomy and neuro-physiological processes related to speech and language. Including basic anatomy of the central and peripheral nervous systems and the physiological processes involved in neuromotor control and neuronal function related specifically to speech and language. Previously offered as CDIS 4412.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D
General Education and other Course Attributes: Natural Science Reasoning

CDIS 4433 Communication Disorders in Adults
Prerequisites: A grade of "C" or higher in CDIS 3203 and CDIS 4423.
Description: A review of language disorders and changes occurring with both normal aging and common neurological diseases and traumas, with focus on cerebral vascular accidents. Neurophysiological bases and etiology are presented as well as evaluation and treatment of aphasia and right hemisphere disorders, dementia and traumatic brain injury.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4542 Intro to Dyslexia
Description: Definition, myths and facts of dyslexia. Prevalence, risk factors, key characteristics, impact. Consensus findings on literacy and the science of reading (e.g., National Reading Panel, National Early Literacy Panel, IES Practice Guides). May not be used for degree credit with CDIS 5542.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4552 Language Processing for Reading and Writing
Description: Comprehensive exploration of the language processing requirements essential for proficient reading and writing. Typical development of oral language, phoneme awareness, decoding skills, printed word recognition, spelling, reading fluency, reading comprehension, and written expression. Detail on domains of language, including phonology, morphology, syntax, semantics, and pragmatics, to understand their significance in reading and writing proficiency. May not be used for degree credit with CDIS 5552.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4562 Dyslexia and the Brain
Description: Neurobiological underpinnings of reading. Cognitive, neural, genetic, and environmental factors that contribute to both typical and atypical reading development. Identification and function of neural circuits involved in reading. Neurobiological mechanisms underlying reading disorders such as dyslexia. Recommended prep: CDIS 4542/5542 or other background/experience with foundations of reading, dyslexia, or neural language processing. May not be used for degree credit with CDIS 5562.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4572 Assessment of Dyslexia
Prerequisites: Grade of "C" or better in CDIS 4542 or CDIS 5542.
Description: Methods to assess and support students with reading difficulties. Assessment tools and techniques, including screening, progress-monitoring, diagnostic, and outcome assessments. Practice reading and interpreting common diagnostic tests and informal diagnostic surveys to assess phonological and phoneme awareness, decoding skills, fluency, comprehension, spelling, and writing. May not be used for degree credit with CDIS 5572.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4900 Undergraduate Research
Prerequisites: Consent of instructor.
Description: Research in speech, language, and hearing sciences and disorders. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Communications Sci & D

CDIS 4970 Special Topics in CSD
Prerequisites: Consent of instructor.
Description: Individual and group investigations of topics in communication sciences and disorders. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 4980 Independent Study in CDIS
Prerequisites: Junior standing and consent of instructor.
Description: Directed readings or research in communication sciences and disorders. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Communications Sci & D

CDIS 4993 Senior Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a faculty member. Required for graduation with departmental honors in communication sciences and disorders.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Communications Sci & D
General Education and other Course Attributes: Honors Credit

CDIS 5000 Masters Research & Thesis
Prerequisites: Consent of graduate faculty.
Description: Research in speech, language and hearing sciences and disorders. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Communications Sci & D

CDIS 5013 Evidence-Based Practice
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders or consent of instructor.
Description: Principles and procedures of evidence-based practice in communication sciences and disorders; experience finding and evaluating systematic research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5113 Developmental Language Disorders
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Assessment and treatment of developmental language disorders from birth to the early school years. Coverage of the continuum of naturalness from play-based therapy to clinician-directed therapy. The course includes current standards of practice as well as attention to changes derived from evidence-based practice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5143 Speech Sound Disorders
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Assessment and treatment of speech sound disorders, including phonological disorders, articulation disorders, and childhood apraxia of speech. Affected individuals include toddlers, children, and young adults. The course includes current standards of practice as well as attention to changes derived from evidence-based practice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5153 Neurological Communication Disorders
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Communication changes occurring with aging and common neurological diseases and trauma. Neurophysiological bases and etiology. Evaluation and treatment of aphasia and right hemisphere disorders. Previously offered as CDIS 5152.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5163 Dysphagia
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Anatomy and physiology of the swallowing mechanism in healthy individuals and in individuals with dysphagia across life span. Evaluation, diagnosis and treatment of swallowing problems across life span with case studies and discussions. The first two-thirds of the course focus on adult dysphagia and the latter one third on pediatric dysphagia. Previously offered as CDIS 5160.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5183 Traumatic Brain Injury and Dementia
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Nature, evaluation and treatment of acquired cognitive communication disorders secondary to traumatic injury or dementia.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5193 Motor Speech Disorders
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Nature, evaluation and treatment of neurologically-based motor speech disorders such as dysarthria and apraxia. Previously offered as CDIS 5172.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5210 Advanced Practicum
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, and consent of instructor.
Description: Practical experience for the advanced student on or off campus. Offered for variable credit, 1-6 credit hours, maximum of 15 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Communications Sci & D
Additional Fees: CDIS 5210 Spath Mat Test fee of $20, CDIS 5210 Spath Insurance fee of $15, and CDIS 521 Clinical Mat fee of $75 apply.

CDIS 5243 Disorders of Literacy and Complex Language
Prerequisites: A grade of "B" or higher in CDIS 5113 and graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Assessment and treatment of literacy disorders and disorders of complex oral language. Clients include school-aged children, adolescents, and young adults. Students will make connections between literacy conventions and the structure of spoken language including complex phrases and sentences. The course includes current standards of practice as well as attention to changes derived from evidence-based practice. Previously offered as CDIS 5242.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5313 Speech Science
Description: Scientific bases of the acoustic parameters, the perceptual and productive processes of speech, and the interrelationships of those factors during speech communication. Previously offered as SPTH 4313. May not be used for degree credit with CDIS 4313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5330 Voice and Resonance Disorders
Description: This course is designed for students to have an advanced knowledge for the assessment and treatment of vocal and resonance disorders. Knowledge of the vocal mechanism is a pre-requisite of evaluating and treating these disorders and will be the emphasis in the early portion of this course. Previously offered as CDIS 5333 and 5334.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5340 Counseling for Speech-Language Pathologists
Description: This course is designed specifically for speech-language pathologists and presents the concepts of counseling as they relate to the assessment and treatment of individuals with communicative disorders, their families, and others in their environment. The goal is to make the connection between the theories of communication disorders and their application for individuals with communication disorders. Topics include the importance of a client-clinician relationship, efficacy beyond traditional measures, practice-based evidence, making change, diversity, and ethics. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5420 Augmentative/Alternative Communication
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Evaluation and management of communication disorders in individuals requiring specially adapted educational intervention programs. Adaptive communication technologies. Previously offered as CDIS 5423.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5433 Cleft Palate
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Recent research in the etiology, assessment and management of communicative disorders in individuals with cleft palate.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5533 Autism Spectrum Disorder: Assessment & Intervention of Communication Deficits
Prerequisites: Graduate standing or permission of instructor.
Description: Assessment and treatment of communication deficits associated with autism spectrum disorder. Etiologies and recent trends in autism spectrum disorder will also be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5542 Intro to Dyslexia
Description: Definition, myths and facts of dyslexia. Prevalence, risk factors, key characteristics, impact. Consensus findings on literacy and the science of reading (e.g., National Reading Panel, National Early Literacy Panel, IES Practice Guides). May not be used for degree credit with CDIS 4542.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5552 Language Processing for Reading and Writing
Description: Comprehensive exploration of the language processing requirements essential for proficient reading and writing. Typical development of oral language, phoneme awareness, decoding skills, printed word recognition, spelling, reading fluency, reading comprehension, and written expression. Detail on domains of language, including phonology, morphology, syntax, semantics, and pragmatics, to understand their significance in reading and writing proficiency. May not be used for degree credit with CDIS 4552.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5562 Dyslexia and the Brain
Description: Neurobiological underpinnings of reading. Cognitive, neural, genetic, and environmental factors that contribute to both typical and atypical reading development. Identification and function of neural circuits involved in reading. Neurobiological mechanisms underlying reading disorders such as dyslexia. Recommended prep: CDIS 4542/5542 or other background/experience with foundations of reading, dyslexia, or neural language processing. May not be used for degree credit with CDIS 4562.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5572 Assessment of Dyslexia
Prerequisites: Grade of "C" or better in CDIS 4542 or CDIS 5542
Description: Methods to assess and support students with reading difficulties. Assessment tools and techniques, including screening, progress-monitoring, diagnostic, and outcome assessments. Practice reading and interpreting common diagnostic tests and informal diagnostic surveys to assess phonological and phoneme awareness, decoding skills, fluency, comprehension, spelling, and writing. May not be used for degree credit with CDIS 4572.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5710 Special Topics in Communication Disorders
Prerequisites: Consent of instructor.
Description: Individual and group investigations of problems in communication sciences and disorders. Repeatable with substantial change in content. Offered for variable credit, 2-3 credit hours, maximum of 12 credit hours.
Credit hours: 2-3
Contact hours: Lecture: 2-3 Contact: 2-3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5713 Fluency Disorders
Prerequisites: Graduate standing in the Department of Communication Sciences and Disorders, or consent of instructor.
Description: Current research regarding the nature of etiologies, evaluation and treatment of dysfluent speech in both children and adults. Previously offered as CDIS 4443 and SPTH 4443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5720 Seminar in Communication Sciences and Disorders
Prerequisites: Consent of instructor.
Description: Readings, discussion, and inquiry in communication disorders. Topics may include theory, research, or application to evaluation or treatment of one or multiple disorders. Repeatable with substantial change in content. Offered for variable credit, 2-3 credit hours, maximum of 12 credit hours.
Credit hours: 2-3
Contact hours: Lecture: 2-3 Contact: 2-3
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5730 Independent Study in Communication Sciences and Disorders
Prerequisites: Graduate standing and consent of instructor.
Description: Directed readings or research in communication sciences and disorders. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Communications Sci & D

CDIS 5732 Professional Issues
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Communications Sci & D

CDIS 5760 Portfolio
Prerequisites: Graduate standing.
Description: Nature and preparation of professional portfolio with faculty guidance. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Graduate
Schedule types: Independent Study
Department/School: Communications Sci & D

Comparative Biomedical Sciences (CBSC)

CBSC 5000 Master's Research and Thesis
Prerequisites: Graduate standing.
Description: Research problem for meeting requirements of the Masters degree. Previously offered as VAPP 5000 and VBSC 5000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

CBSC 5010 Professional Skills for Biomedical Sciences
Prerequisites: Graduate student standing; consent of instructor.
Description: Acquiring skills that are usually not taught in other courses but are essential to be successful in the graduate program as well as in a career in science. Writing and publishing a scientific paper, writing a successful grant proposal, preparing effective oral and poster presentations, and understanding professional ethics in the conduct of scientific research. Previously offered as VBSC 5010. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5013 Comparative Biomedical Sciences I: Cell & Molecular Biology
Prerequisites: Graduate standing and consent of instructor.
Description: The course is designed to provide a comprehensive understanding of cellular and molecular biology including protein and DNA structure and function, gene regulation, membrane function and traffic, mitochondria, cytoskeleton, cell communication, cell cycle, cell death, and cell junctions, adhesion and extracellular matrix as well as other relevant topics. Previously offered as VBSC 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5023 Comparative Biomedical Sciences II: Pathophysiology
Description: Integrated applied biology and pathophysiology of hosts and pathogens of veterinary interest including infectious disease processes; hemodynamic, inflammatory, immune and tissue repair responses; genetic, environmental, nutritional, and neoplastic disorders; and aging. Previously offered as VBSC 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5033 Physiological Systems for Biomedical Sciences
Description: This course will cover eight physiological systems during the semester including: cellular, nervous, musculoskeletal, endocrine, cardiovascular, respiratory, gastro-intestinal and renal. Individual clinical application case studies for health and disease will be regularly assigned. Each case will emphasize the application of fundamental concepts of physiology and biophysics to normal function, as well as compensation with imposed stresses and disease.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5103 Biochemical and Molecular Toxicology
Prerequisites: Graduate standing and consent of instructor.
Description: In-depth overview of biochemical and molecular mechanisms of interactions between exogenous chemicals and living systems. Transport, distribution, elimination and alteration of exogenous chemicals within the body and mechanisms whereby exogenous chemicals disrupt biochemical processes critical for cell/organ/organismal integrity and function. Same course as ITOX 5103. Previously offered as VBSC 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5110 Special Problems
Prerequisites: Graduate standing and consent of instructor.
Description: Special research problems in the various fields of veterinary biomedical sciences. Previously offered as VIDP 5110 and VBSC 5110. Offered for variable credit, 1-6 credit hours, maximum of 20 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

CBSC 5133 Viral Pathogenesis and Host Interactions
Description: This course is designed for graduate students to understand how viruses cause disease in humans and animals. The course emphasizes the intrinsic properties of viruses that cause disease, virus-host interaction, viral replication, genetics, and tumor induction. How the host mounts an immune response to viruses will also be discussed. May not be used for degree credit with MICR 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5153 Veterinary Immunology
Description: Basic principles of immunology and their application to veterinary medicine. Same course as VME 7153. Previously offered as VBSC 5253 and CBSC 5253.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

CBSC 5161 Epidemiology and Evidence-Based Medicine
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5211 Theriogenology
Description: This graduate course is designed to facilitate broad and deep knowledge development in preparation for the certifying examinations of the American College of Theriogenologists and for other graduate students desiring deeper knowledge and understanding of reproductive physiology, cycle and breeding management, as well as the pathogenesis, diagnosis, pathology, medical and surgical treatment, prevention of, and relevance to production of diseases of the reproductive systems in all domestic animal species.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5213 Toxicology: Molecules to Ecosy
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5233 High-Throughput Comparative Genomics
Description: This course introduces the field of genomics, focusing on the sequences as biological information, and the flow of information in biology. Students will explore how disruptive innovations, such as third generation, single-molecule, long-read sequencing, have made large-scale genomic projects accessible and cost-effective. The course will cover methods for comparing genomes across various scales, from dozens to hundreds to millions of genomes, with an emphasis on the stunning diversity and lack of sequence conservation and the importance of protein structural domains.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5264 General Pathology
Prerequisites: Graduate standing and consent of instructor.
Description: Cellular and tissue pathology, pigments, inflammation, immunopathology, disturbances of growth and circulation, and neoplasia. Functional disturbances that accompany changes in structures as well as the causes and pathogenesis of diseases. Same course as VMED 7264. Previously offered as VBSC 5264.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate, Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

CBSC 5325 Veterinary Parasitology
Credit hours: 5
Contact hours: Lecture: 3 Lab: 4 Contact: 7
Levels: Graduate, Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

CBSC 5333 Pharmacology I
Prerequisites: Graduate standing and consent of instructor.
Description: Introduction of the principles of pharmacodynamics, drug disposition and pharmacokinetics. Pharmacological effects, mechanisms of actions, metabolism, disposition, clinical indications and toxic effects of drugs acting on the autonomic, central nervous, cardiovascular, respiratory, and renal systems. Same course as VMED 7333. Previously offered as VBSC 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5363 Clinical Pathology
Prerequisites: Graduate standing and consent of instructor.
Description: Basic concepts pertinent to data interpretation and laboratory methods used in evaluation of disease. Same course as VMED 7363. Previously offered as VBSC 5363.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate, Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

CBSC 5404 Techniques in Parasitology
Prerequisites: Graduate standing and general parasitology; helminthology or concurrent enrollment.
Description: Experimental application of basic research and teaching techniques in helminthology and protozoology. Individual and analysis of experimental situations and techniques applicable to all areas of zoology. Previously offered as VBSC 5404.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate, Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

CBSC 5413 Food Safety and Public Health
Prerequisites: Graduate standing and consent of instructor.
Description: Approaches and skills for identifying, investigating and mitigating occurrences of disease outbreaks; introduction to zoonotic diseases; role veterinarians play in protecting public health; potential human health hazards in foods of animal origin. Course previously offered as VMED 5313 and VBSC 5413. Same course as VMED 7413 and MPH 5413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5432 Pharmacology II
Prerequisites: Graduate standing and consent of instructor.
Description: Continuation of VBSC 5333 that includes the mechanisms of action, disposition, adverse effects, and indications for groups of pharmacological agents used in veterinary medicine. Same course as VMED 7432. Previously offered as VBSC 5432.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5444 Veterinary Bacteriology & Mycology
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate, Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

CBSC 5454 Veterinary Virology
Prerequisites: Graduate standing and consent of instructor.
Description: Course covers important animal diseases caused by viruses. These infectious diseases will be taught in an animal systems approach. The first part will provide an overview of veterinary virology. The second part will discuss the different viral diseases of animals. Material for each of the viral infections includes the mechanisms of the disease processes and the relationships of zoonotic diseases to community and environmental health as well as important zooneses. Same course as VMED 7454. Previously offered as VBSC 5454.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5482 Hemolymphatic and Oncology
Prerequisites: Graduate standing and consent of instructor.
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the blood and lymphatic system. (6 week module). Same course as VMED 7482. Previously offered as VBSC 5482.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Graduate, Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

CBSC 5512 Laboratory Animal Medicine
Prerequisites: Graduate standing and consent of instructor.
Description: Introductory course focusing on the biology and major diseases of commonly used laboratory animals. Same course as VMED 7512. Previously offered as VBSC 5512.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5533 Toxicology
Prerequisites: Graduate standing and consent of instructor.
Description: Diagnosis and management of intoxications involving plant, chemical, and biological toxins. Same course as VMED 7533. Previously offered as VBSC 5533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5542 Clinical Endocrinology I
Prerequisites: Graduate standing and consent of instructor.
Description: Advanced medical endocrinology addressing diagnostic endocrinology and therapeutic endocrinology. Diagnostic endocrinology shall examine the physiological and medical basis for selecting provocative or non-provocative testing procedures as an adjunct to completing a definitive diagnosis. Therapeutic endocrinology involves the use of diagnostic endocrinology to evaluate the efficacy of medical treatment of endocrinopathies and the medical use of hormonal preparations to control animal physiology and endocrinology and non-endocrine diseases. Same course as VMED 7542. Previously offered as VBSC 5542.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5563 Musculoskeletal System
Prerequisites: Graduate standing and consent of instructor.
Description: Diagnosis and management of intoxications involving plant, chemical and biological toxins. Same course as VMED 7563. Previously offered as VBSC 5563.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate, Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

CBSC 5564 Alimentary System
Prerequisites: Graduate standing and consent of instructor.
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the alimentary system. Same course as VMED 7564. Previously offered as VBSC 5564.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5583 Dermatology and Endocrinology
Prerequisites: Graduate standing and consent of instructor.
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to skin and the endocrine system (nine-week model). Same course as VMED 7583. Previously offered as VBSC 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5612 Clinical Neurology
Prerequisites: Graduate standing and consent of instructor.
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of nervous system diseases. Same course as VMED 7612. Previously offered as VBSC 5612.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5613 Biology of Parasites
Prerequisites: Graduate standing and consent of instructor.
Description: A systematic and ecologic approach to the study of parasitology. Host-parasite relationships, physiology, ecology and behavioral aspects of parasitic organisms. Previously offered as VBSC 5613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5614 Cardiopulmonary System
Prerequisites: Graduate standing and consent of instructor.
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the cardiovascular and respiratory systems. Same course as VMED 7614. Previously offered as VBSC 5614.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5661 Infectious and Parasitic Diseases of Wild Animals
Prerequisites: Graduate standing and consent of instructor.
Description: Systematic approach to infectious and parasitic diseases affecting wild animals. Capture, restraint, and disease recognition in wild species, population management implications of disease diagnosis. Same course as VMED 7661. Previously offered as VBSC 5661.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5662 Urinary System
Prerequisites: Graduate standing and consent of instructor.
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment and prevention of diseases related primarily to the urinary system. Same course as VMED 7662. Previously offered as VBSC 5662.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5671 Clinical Endocrinology II
Prerequisites: Graduate standing and consent of instructor.
Description: Advanced medical endocrinology, focusing on endocrine diseases associated with 1) dysfunction of the endocrine pancreas, 2) selected endocrinopathies of the reproductive system, and 3) therapeutic use of hormones to control reproductive activity of animals. Same course as VMED 7671. Previously offered as VBSC 5671.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5801 Nonclinical Drug Development
Prerequisites: Graduate standing and consent of instructor.
Description: This course will cover the basic to highly-regulated concepts in nonclinical drug development including pharmacology, pharmacokinetics, and toxicology, along with topics in chemistry manufacturing and controls. Same course as ITOX 5801. Previously offered as VBSC 5801.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5802 Experimental Principles and Approaches
Prerequisites: Graduate standing and consent of instructor.
Description: A review of experimental principles and approaches essential for design, conduct and analysis of research. Same course as ITOX 5802. Previously offered as VBSC 5802.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 5902 Toxicology of Chemical Warfare and Chemical Terrorism
Prerequisites: Graduate standing and consent of instructor.
Description: The course will review the history and current issues related to the use of chemicals as agents of warfare and terrorism. Students will participate in weekly roundtable lectures/discussions and review publications related to various toxicological issues surrounding these chemicals. Same course as ITOX 5902. Previously offered as VBSC 5902.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 6000 PhD Research and Dissertation
Prerequisites: Graduate standing.
Description: Research problem for meeting requirements of the PhD degree. Previously offered as VBSC 6000. Offered for variable credit, 1-15 credit hours, maximum of 45 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

CBSC 6010 Respiratory and Infectious Disease Seminar
Prerequisites: Graduate standing and consent of IOR.
Description: The Oklahoma Center for Respiratory and Infectious Disease hosts seminars each semester. This course requires mandatory attendance for seminars with opportunities to meet with and have discussions with the visiting scientist. Previously offered as VBSC 6010. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Dean of Veterinary Med

CBSC 6110 Seminar
Prerequisites: Graduate standing.
Description: Literature and research problems pertaining to veterinary biomedical sciences. Previously offered as VBSC 6110. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

CBSC 6200 Topics in Advanced Pharmacology and Toxicology
Prerequisites: Graduate standing and consent of instructor.
Description: Selected topics in advanced pharmacology, including xenobiotic kinetics and dynamics. Previously offered as VBSC 6200. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate, Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

CBSC 6223 Xenobiotic Disposition
Prerequisites: Graduate standing and consent of instructor.
Description: Quantitative analysis of xenobiotic absorption, metabolism, and excretion. Analysis of xenobiotic concentration-time data using pharmacokinetic software. Same course as ITOX 6223. Previously offered as VBSC 6201 and VBSC 6223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

CBSC 6710 Seminar in Veterinary Clinical Sciences
Prerequisites: Graduate standing in the College of Veterinary Medicine, or internship or residency training program in the Department of Veterinary Clinical Services.
Description: Literature and research of problems pertaining to veterinary clinical sciences. Previously offered as VBSC 6710. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

CBSC 6960 Current Topics in Veterinary Clinical Pathology
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate, Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

Computer Science (CS)

CS 1003 Computer Proficiency
Description: Introduces students to the fundamental concepts of computing in a way that is accessible and engaging for non-computer science majors. The course explores key topics such as computer architecture, networking, data and its importance, computational thinking, programming logic, and emerging technologies. Previously offered as CS 1002.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 1013 Computer Science Principles
Description: Computing as a creative human activity, abstraction to reduce detail and focus on concepts relevant to understanding and solving problems, describing data and information to facilitate the creation of knowledge, discuss algorithms as tools for developing and expressing solutions to computational problems, use programming is a creative process that produces computational artifacts; and discuss digital devices, systems, and the networks that interconnect them.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

CS 1103 Computer Programming (Q)
Prerequisites: MATH 1513 or higher, each with a grade of "C" or better.
Description: Introduction to computer programming using a high-level computer language, including subprograms and arrays. Principles of problem solving, debugging, documentation, and good programming practice. Elementary methods of searching and sorting. No prior programming or computing experience needed. Previously offered as CS 2103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science
General Education and other Course Attributes: Analytical & Quant Thought

CS 1113 Computer Science I (Q)
Prerequisites: Minimum grade of "C" in MATH 1513 and CS 1013; or minimum grade of "C" in MATH 1813 or higher; or an acceptable math placement score (see placement.okstate.edu).
Description: Introduction to computer science using a block-structured high-level computer language, including subprograms, arrays, recursion, records, and abstract data types. Principles of problem solving, debugging, documentation, and good programming practice. Elementary methods of sorting and searching. Use of operating system commands and utilities. Previously offered as CS 2113 and CS 2123.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Computer Science
General Education and other Course Attributes: Analytical & Quant Thought

CS 2133 Computer Science II
Prerequisites: CS 1113 with a grade of "C" or better.
Description: Recursive algorithms. Intermediate methods of searching and sorting. Mathematical analysis of space and time complexity, worst case, and average case performance. Course previously offered as CS 3333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 2351 Unix Programming
Prerequisites: CS 1113 or EET 2303 with a grade of "C" or better.
Description: The UNIX programming system. The programming environment. The UNIX file system and the shell. Use of pipes and filters. Course previously offered as CS 3451.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Computer Science

CS 2433 C/C++ Programming
Prerequisites: CS 1113 with a grade of "C" or better.
Description: C/C++ programming language types, operators, expressions, control flow, functions, structures, pointers, arrays, UNIX interface. Basic object oriented programming using C++ and the related language syntax and functionality. Previously offered as CS 2432.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 2570 Special Problems in Computer Science
Prerequisites: Consent of instructor and freshman or sophomore standing.
Description: Current topics and applications of computer science. Existing and new topics to computer science. Allows lower-division students to study topics not provided in existing classes. Can be individual study or a class with a new subject. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Computer Science

CS 3030 Industrial Practice in Computer Science
Prerequisites: CS 3443 and MATH 2144, each with a grade of "C" or better, junior standing, consent of departmental adviser.
Description: Applied computing in industry. Topics vary with cooperating employers. Written reports will be specified by adviser. Basic object oriented programming using C++ and the related language syntax and functionality. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Computer Science

CS 3353 Data Structures and Algorithm Analysis I
Prerequisites: CS 2133, and CS 3653 or (MATH 3613 and MATH 4663), each with a grade of "C" or better.
Description: Storage, structures, data and information structures, list processing, trees and tree processing, graphs and graph processing, searching, and sorting. Previously offered as CS 4343 and CS 4344.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 3363 Organization of Programming Languages
Prerequisites: CS 2133 and (CS 3443 or ECEN 3213), each with a grade of "C" or better.
Description: Programming language constructs. Run time behavior of programs. Language definition structure. Control structures and data flow programming paradigms. Previously offered as CS 4363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 3443 Computer Systems
Prerequisites: CS 2133 with a grade of "C" or better.
Description: Functional and register level description of computer systems, computer structures, addressing techniques, macros, linkage, input-output operations. Introduction to file processing operations and auxiliary storage devices. Programming assignments are implemented in assembly language.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 3513 Numerical Methods for Digital Computers
Prerequisites: MATH 2153 with a grade of "C" or better; MATH 3013 with a grade of "C" or better, or concurrent enrollment; or MATH 3263 with a grade of "C" or better and knowledge of programming.
Description: Errors, floating point numbers and operations, interpolation and approximation, solution of nonlinear equations and linear systems, condition and stability, acceleration methods, numerical differentiation and integration. Course previously offered as CS 3223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 3570 Special Problems in Computer Science
Prerequisites: Junior standing and consent of instructor.
Description: Existing and new topics to computer science. Allows lower-division students to study topics not provided in existing classes. Can be individual study or a class with a new subject. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Computer Science

CS 3613 Theoretical Foundations of Computing
Prerequisites: CS 2133 and CS 3653, each with a grade of "C" or better.
Description: Introduction to the classical theory of computer science. Sequential machines and their applications to devices, processes, and programming. Models of computation: finite-state automata, push-down automata, Turing machines. The role of non-determinism. Limits of digital computation. Computability and unsolvability. The Church-Turing Thesis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 3653 Discrete Mathematics for Computer Science
Prerequisites: MATH 2144 with a grade of "C" or better.
Description: Theory and applications of discrete mathematical models fundamental to analysis of problems in computer science. Set theory, formal logic and proof techniques, relations and functions, combinatorics and probability, undirected and directed graphs, Boolean algebra, switching logic.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4143 Computer Graphics
Prerequisites: MATH 2163 and CS 3353, each with a grade of "C" or better.
Description: Interactive graphics programming; graphics hardware; geometrical transformation; data structures for graphic representations; viewing in three dimensions; representation of 3D shapes; hidden edge and hidden surface removal algorithms; shading models. May not be used for degree credit with CS 5143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4153 Mobile Applications Development
Prerequisites: CS 2133 or 2433, each with a grade of "C" or better.
Description: The history of mobile apps and their implication on computing in general. Survey of the various platforms and approaches used for mobile apps. Examine the differences between "conventional" programs and mobile apps. Learn tools and techniques to develop mobile apps, and demonstrate proficiency through development assignments. Must have access to computer running Mac OS. May not be used for degree credit with CS 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4173 Video Game Development
Prerequisites: CS 2133, and CS 2433 and MATH 2144, all with a grade of "C" or better.
Description: History of video games. A survey of various game platforms. Computer graphics, audio tools and techniques, and artificial intelligence for game development. Game engines. Game development tools and techniques. An overview of the video game industry from a development perspective. May not be used for degree credit with CS 5163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4183 Video Game Design
Prerequisites: CS 2133 and CS 3653, each with a grade of "C" or better.
Description: Theory and pragmatics of game design including game mechanics, storytelling, and types of game play. The relationship between human/computer interaction and the user experience. A survey of game genres. An overview of the video game industry from a design perspective. May not be used for degree credit with CS 5183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4243 Introduction to Computer Security
Prerequisites: CS 3443 or ECEN 3213, each with a grade of "C" or better.
Description: Introductory course to computer security. Covers a broad range of basic topics in security, including cryptography, computer security, and network security. May not be used for degree credit with CS 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4273 Software Engineering
Prerequisites: CS 3353 with a grade of "C" or better.
Description: Fundamental characteristics of the software life cycle. Tools, techniques, and management controls for development and maintenance of large software systems. Software metrics and models. Human factors and experimental design. Same course as ECEN 4273. May not be used for degree credit with CS 5473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4283 Computer Networks
Prerequisites: CS 2133 with a grade of "C" or better; and CS 3443 or ECEN 3213 with a grade of "C" or better; UNIX knowledge.
Description: Computer networks, distributed systems and their systematic design. Introduction to the use, structure, and architecture of computer networks. Networking experiments to describe network topology. ISO reference model. Same course as ECEN 4283. May not be used for degree credit with CS 5383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4323 Design and Implementation of Operating Systems I
Prerequisites: CS 2133; and CS 3443 or ENSC 3213 or ECEN 3213; and CS 3653 and CS 4343 or CS 3353, all with a grade of "C" or better.
Description: Process activation and process context block. Batch, multi-programmed, and timeshared operating system. Process management, memory management, and synchronization primitives. Deadlock prevention, avoidance, and detection. May not be used for degree credit with CS 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4373 Agile Software Development
Description: This course includes a comprehensive overview of the principles and practices of Agile software development based on Agile community's recent recommendations. The emphasis is on quick realization of system value through disciplined, iterative, and incremental software development techniques and the elimination of wasteful practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4383 Network Security and Defense
Prerequisites: CS 2133 with a grade of "C" or better.
Description: Network Security and Defense exposes students to intrusion detection, network auditing, (forensic) evidence collection, security policy design/implementation for networks, and incidence response. Students explore the viewpoint of both the attacker and the defender (network administrator) using appropriate tools in laboratory exercises, May not be used for degree credit with CS 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4433 Introduction to Database Systems
Prerequisites: CS 2133 with a grade of "C" or better.
Description: An overview of database management systems, entity-relationship model, relational model, structural query language, relational algebra, relational database design with normalization theorems, XML; basic file organization and storage management; elementary e-commerce web application development; database systems and the Internet. May not be used for degree credit with CS 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4483 Network Attack Security
Prerequisites: CS 3443, CS 4243, and CS 4283, each with a grade of "C" or better.
Description: This course will expand the practical knowledge of cyber attacks and their defense technologies as applied to an industrial setting. The course covers the functions and purposes of the key elements used to analyze, create, secure, and protect an industrial cyber infrastructure from cyber threats and attacks. May not be used for degree credit with CS 5483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4513 Introduction to Numerical Analysis
Prerequisites: MATH 2233 and MATH 3013, each with a grade of "C" or better, knowledge of programming or consent of instructor.
Description: Computer arithmetic and round-off errors, numerical solution to nonlinear equations, interpolation, numerical differentiation and integration, numerical solutions to ordinary differential equations, error analysis for numerical solutions and approximations. Additional topics may include direct and iterative solutions for linear systems of equations. Same course as MATH 4513. May not be used for degree credit with MATH 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4523 Cloud Computing and Distributed Systems
Prerequisites: CS 3443; and CS 4343 or CS 3353, each with a grade of "C" or better.
Description: Cloud computing and distributed systems architectures and models. Usage of Virtual Machines. Distributed computing frameworks. Using the cloud for big data analytics. Cloud deployment of data science algorithms. Cloud services. Security. May not be used for degree credit with CS 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4570 Special Topics in Computing
Prerequisites: Honors Program participation, junior standing.
Description: Advanced topics and applications of computer science. Typical topics include operating systems, multiprocessor systems, programming systems or various mathematical and statistical packages. Designed to allow students to study topics not provided in existing courses. Offered for variable credit, 1-3 credit hours, maximum of 5 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Computer Science

CS 4623 Introduction to Cyber Physical Systems
Prerequisites: CS 2133 with grade of "C" or better.
Description: Introduction to principles and technologies dealing with cyber physical systems and Internet of Things (IoT). Design of cyber physical frameworks and the process underlying creation of 3D VR based simulation models and Next Generation Internet frameworks to support the adoption of cyber physical methodologies. Information modeling and systems engineering based techniques to support the design of collaborative methodologies for CPS contexts from various domains including robotics and medicine. May not be used for degree credit with CS 5623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4743 Extended Reality
Prerequisites: CS 2133 and CS 2433 and CS 3653, each with a grade of "C" or better.
Description: Survey the history and state-of-the-art of immersive computing, aka VAMR (virtual/augmented/mixed reality) computing. Tools and techniques to develop for a variety of target platforms. Human physiological factors that affect the design and development of immersive systems. The relationship of immersive computing with IoT (Internet of Things). Construction of virtual environments and the tracking of real and virtual objects. Applications of immersive computing to solve real-world problems. May not be used for degree credit with CS 5743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4783 Machine Learning
Prerequisites: CS 4343 or CS 3353, and MATH 3013, each with a grade of "C" or better.
Description: A probabilistic, statistical approach to automated pattern discovery applied to large datasets. Constructing computational models with this information and assessing their behavior and reliability. Representing data and devising tools for discovering these models. Class focuses on the development and analysis of learning algorithms as well as the mathematical formulations underlying statistical processing. May not be used for degree credit with CS 5783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4793 Artificial Intelligence I
Prerequisites: CS 3353 with a grade of "C" or better.
Description: Broad coverage of core artificial intelligence (AI) topics, including search-oriented problem solving, knowledge representation, logical inference, AI languages, history and philosophy of AI. May not be used for degree credit with CS 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4883 Social Issues in Computing
Prerequisites: Senior standing and a grade of "C" or better in ENGL 3323 or BCOM 3113 or BCOM 3223 or SPCH 3723.
Description: The history and evolution of computing systems, providing the background for the analysis of the social impact of computers. The social implications of computer use and or misuse with emphasis on the effects on the individual, society, and other human institutions. Social responsibilities of people involved in using or applying computers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4983 Senior Capstone Project
Prerequisites: CS 4273 with a grade of "C" or better.
Description: This course enables senior computer science majors to organize and apply the knowledge they have acquired from the undergraduate curriculum. Students are expected to work in teams to develop software solutions to real-world problems identified by an instructor. Teams are required to analyze the problem presented to them, design and implement a solution, and provide a report with performance analysis. Each team is also expected to present its work, including its ethical and social implications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Computer Science

CS 4993 Senior Honors Project
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors project under the direction of a faculty member, with a second faculty reader and an oral examination. Required for graduation with departmental honors in computing and information science.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Computer Science
General Education and other Course Attributes: Honors Credit

CS 5000 Master's Thesis
Prerequisites: Consent of major professor.
Description: Roles and responsibilities of the agricultural education teacher; types of program offerings; steps of the teaching-learning process; place of agricultural education in relation to other educational programs in school systems. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 5030 Professional Practice
Prerequisites: Graduate standing in computer science, consent of the department head.
Description: Experience in the application of computer science principles to problems encountered in industry and government. Participation in problem solving in the role of junior computer scientist, junior software engineer, or computer science intern. All problem solutions documented. Required written report to the major professor. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 5033 Parallel Algorithms and Programming
Prerequisites: CS 4343 or CS 3353 with a grade of "C" or better, or consent of instructor.
Description: Models of parallel computation, design and analysis of parallel algorithms: fundamental parallel algorithms for selected sorting, arithmetic, and matrix, and graph problems, and applications in science and engineering, message-passing programming, and shared-memory programming.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5070 Seminar and Special Problems
Prerequisites: Consent of instructor.
Description: Designed to allow students to study advanced topics not provided in existing courses. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 5113 Computer Organization and Architecture
Prerequisites: CS 3443 with a grade of "C" or better.
Description: Computer architecture, computer control, microprogrammed control, addressing structures, memory hierarchies, hardware description languages, specific architectures, hardware simulation, and emulation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5123 Cloud Computing and Distributed Systems
Prerequisites: CS 3443; and CS 4343 or CS 3353, each with a grade of "C" or better.
Description: Cloud computing and distributed systems architectures and models. Usage of Virtual Machines. Distributed computing frameworks. Using the cloud for big data analytics. Cloud deployment of data science algorithms. Cloud services. Security. May not be used for degree credit with CS 4523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5143 Computer Graphics
Prerequisites: MATH 2163 and CS 3353, each with a grade of "C" or better.
Description: Interactive graphics programming; graphics hardware; geometrical transformation; data structures for graphic representations; viewing in three dimensions; representation of 3D shapes; hidden edge and hidden surface removal algorithms; shading models. May not be used for degree credit with CS 4143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5153 Mobile Applications Development
Prerequisites: CS 2133 or 2433, each with a grade of "C" or better.
Description: The history of mobile apps and their implication on computing in general. Survey of the various platforms and approaches used for mobile apps. Examine the differences between "conventional" programs and mobile apps. Learn tools and techniques to develop mobile apps, and demonstrate proficiency through development assignments. Must have access to computer running Mac OS. May not be used for degree credit with CS 4153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5163 Video Game Development
Prerequisites: CS 2133, and CS 2433 and MATH 2144, all with a grade of "C" or better.
Description: History of video games. A survey of various game platforms. Computer graphics, audio tools and techniques, and artificial intelligence for game development. Game engines. Game development tools and techniques. An overview of the video game industry from a development perspective. May not be used for degree credit with CS 4173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5173 Video Game Production
Prerequisites: CS 4173 and CS 4183, each with a grade of "C" or better.
Description: The various aspects of video game production and the video game industry will be covered, including technical production and testing, roles and responsibilities of team members, project management, and legal concerns related to video game production. Professionals from the video game industry will be invited to make presentations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5183 Video Game Design
Prerequisites: CS 2133 and CS 3653, each with a grade of "C" or better.
Description: Theory and pragmatics of game design including game mechanics, storytelling, and types of game play. The relationship between human/computer interaction and the user experience. A survey of game genres. An overview of the video game industry from a design perspective. May not be used for degree credit with CS 4183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5223 Design and Implementation of Operating Systems I
Prerequisites: CS 2133; and CS 3443 or ENSC 3213 or ENSC 3213; and CS 3653 and CS 4343 or CS 3353, all with a grade of "C" or better.
Description: Process activation and process context block. Batch, multi-programmed, and timeshared operating system. Process management, memory management, and synchronization primitives. Deadlock prevention, avoidance, and detection. May not be used for degree credit with CS 4323. For non-CS majors only.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5233 Intro to Database Systems
Prerequisites: CS 2133 with a grade of "C" or better.
Description: An overview of database management systems, entity-relationship model, relational model, structural query language, relational algebra, relational database design with normalization theorems, XML; basic file organization and storage management; elementary e-commerce web application development; database systems and the Internet. May not be used for degree credit with CS 4433 or CS 5423. Previously offered as CS 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5243 Introduction to Computer Security
Prerequisites: CS 3443 with a grade of "C" or better.
Description: Introductory course to computer security. Covers a broad range of basic topics in security, including cryptography, computer security, and network security. May not be used for degree credit with CS 4243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5253 Digital Computer Design
Prerequisites: ECEN 4243 or graduate standing.
Description: Analysis and design of digital computers. Arithmetic algorithms and the design of the arithmetic/logic unit (ALU). Serial and parallel data processing; control and timing systems; microprogramming; memory organization alternatives; input/output interfaces. Same course as ECEN 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5263 Quantum Computing
Prerequisites: Graduate standing.
Description: The main theory of quantum information science and its applications to communications, computing and cryptography. Topics include introduction to quantum mechanics, quantum gates, circuits, entropy, cryptographic schemes, and implementations. Current technology in support of quantum processing will be reviewed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5273 Advanced Software Engineering
Prerequisites: CS 4273 with a grade of "C" or better.
Description: Continuation of CS 4273. Formal methods for software design and development. Static analysis. Emerging design and development approaches. Model checking and model-based software reuse. Component-based software engineering and software repositories. Same course as ECEN 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5283 Computer Network Programming
Prerequisites: CS 4283 with a grade of "C" or better.
Description: Detailed technical concepts related to Internet and multimedia, high speed LANS, high speed transport protocols, MPLS, multicasting, Int. serv/Diff serv, Router Buffer management, self-similar traffic, and socket programming.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5313 Formal Language Theory
Prerequisites: CS 3613 with a grade of "C" or better.
Description: Formal language theory applied to procedure oriented languages. Application of finite state algorithms to lexical analysis. Chomsky hierarchy of languages. Generation, recognition, and closure properties of languages.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5323 Design and Implementation of Operating Systems II
Prerequisites: CS 4323 with a grade of "C" or better.
Description: Task systems and concurrent programming, synchronization, and inter process communication. Theoretical investigation of resource sharing and deadlock, memory management, strategies, and scheduling algorithms, queuing theory, distributed operating systems. System accounting, user services and utilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5363 Advanced Organization of Programming Languages
Prerequisites: CS 3363 with a grade of "C" or better.
Description: Continuation of CS 3363, mathematical theory of computer language organization functional programming. Parallelism in languages. Mathematics of control structures and data structures. Applicative languages. Symbolic languages.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5373 Advanced Object-Oriented Programming for Windowing Environments
Prerequisites: For CS students: CS 2133 and CS 2433, each with a grade of "C" or better. For TCOM students: CS 4343 or CS 3353 with a grade of "C" or better and a working knowledge of C++.
Description: Applying the object-oriented computing model to the design and development of software for windowing environments. Effective use of Graphical User Interfaces (GUIs), the Internet, data interchange principles and related topics. No credit for students with credit in CS 3373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5383 Computer Networks
Prerequisites: CS 2133 with a grade of "C" or better; and CS 3443 or ECEN 3213 with a grade of "C" or better; UNIX knowledge.
Description: Computer networks, distributed systems and their systematic design. Introduction to the use, structure, and architecture of computer networks. Networking experiments to describe network topology. ISO reference model. May not be used for degree credit with CS/ECEN 4283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5413 Data Structures and Algorithm Analysis II
Prerequisites: CS 4343 or CS 3353 with a grade of "C" or better.
Description: Data structures and their application in recursive and iterative algorithms. Static and dynamic data structure representations and processing algorithms. Dynamic and virtual storage management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5423 Principles of Database Systems
Prerequisites: CS 4343 or CS 3353; and CS 4433 or equivalent; each with a grade of "C" or better.
Description: An overview of database management systems, entity-relationship model, relational model, structural query language, relational algebra, functional dependencies, relational database design with normalization theorems, query processing, fault recovery, concurrent control, web-based database systems. Introduction to NoSQL databases, querying NoSQL databases. May not be used for degree credit with CS 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5433 Big Data Management
Prerequisites: CS 3353.
Description: Introduction to storing, processing and analyzing big data. Topics to be covered include map-reduce model within the Hadoop framework, data summarization, query and analysis; data munging and transformation; streaming data; transferring structured data; setting up distributed services; fast data processing using Apache Spark, including querying, live data streaming, machine learning and parallel processing; writing data pipeline jobs; introduction to machine learning using R or Python.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5473 Software Engineering
Description: Fundamental characteristics of the software life cycle. Tools, techniques, and management controls for development and maintenance of large software systems. Software metrics and models. Human factors and experimental design. May not be used for degree credit with CS 4273 and ECEN 4273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5483 Network Attack Security
Prerequisites: CS 3443, CS 5243, and CS 5383.
Description: This course will expand the practical knowledge of cyber attacks and their defense technologies as applied to an industrial setting. The course covers the functions and purposes of the key elements used to analyze, create, secure, and protect an industrial cyber infrastructure from cyber threats and attacks. May not be used for degree credit with CS 4483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5513 Numerical Computation
Prerequisites: MATH 3013 or equivalent courses with a grade of "C" or better and CS 3513 or an equivalent course with a grade of "C" or better and a knowledge of computer programming.
Description: This course covers advanced topics in numerical computation including matrix multiplication, norms, singular value decomposition, sensitivity of square systems, LU decomposition, pivoting, roundoff error in Gaussian elimination, orthogonalization, least squares, and Eigenvalue problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5583 Network Security and Defense
Prerequisites: CS 2133.
Description: Network Security and Defense exposes students to intrusion detection, network auditing, (forensic) evidence collection, security policy design/implementation for networks, and incidence response. Students explore the viewpoint of both the attacker and the defender (network administrator) using appropriate tools in laboratory exercises. May not be used for degree credit with CS 4383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5623 Introduction to Cyber Physical Systems
Prerequisites: CS 2133 with grade of "C" or better.
Description: Introduction to principles and technologies dealing with cyber physical systems and Internet of Things (IoT). Design of cyber physical frameworks and the process underlying creation of 3D VR based simulation models and Next Generation Internet frameworks to support the adoption of cyber physical methodologies. Information modeling and systems engineering based techniques to support the design of collaborative methodologies for CPS contexts from various domains including robotics and medicine. May not be used for degree credit with CS 4623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5653 Automata and Finite State Machines
Prerequisites: CS 5313 with a grade of "C" or better.
Description: Sequential machines and automata. Hierarchy of recognizers. Decision problems and closure properties. Finite and infinite state machines. Cellular and stochastic automata. Coverings of automata.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5663 Computability and Decidability
Prerequisites: CS 5313 with a grade of "C" or better.
Description: Primitive and partial recursive functions. Equivalence of models of computation. The Halting problem and undecidability. Reducing one problem to another or representation change. Tractability and the P-NP problem. Complexity hierarchies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5683 Big Data Analytics
Prerequisites: CS 5513 or instructor's permission.
Description: This course focuses on data science methods to analyze multiple types of massive datasets along with their applications on real world problems like web analysis and recommender systems. May not be used for degree credit with MSIS 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5723 Artificial Intelligence I
Prerequisites: CS 3353 with a grade of "C" or better.
Description: Broad coverage of core artificial intelligence (AI) topics, including search-oriented problem solving, knowledge representation, logical inference, AI languages, history and philosophy of AI. May not be used for degree credit with CS 4793.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5733 Intelligent Robotics
Prerequisites: CS 3353 with minimum grade of "C".
Description: This course presents a graduate-level overview of robotics, with special emphasis on probabilistic representations, learning and social interaction. During the course, students will implement many of the concepts taught in the course on a real robot, a small and inexpensive indoor quadrotor drone. Students are required to purchase the drone for approximately $300.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5743 Extended Reality
Prerequisites: CS 2133 and CS 2433 and CS 3653, each with a grade of "C" or better.
Description: Survey the history and state-of-the-art of immersive computing, aka VAMR (virtual/augmented/mixed reality) computing. Tools and techniques to develop for a variety of target platforms. Human physiological factors that affect the design and development of immersive systems. The relationship of immersive computing with IoT (Internet of Things). Construction of virtual environments and the tracking of real and virtual objects. Applications of immersive computing to solve real-world problems. May not be used for degree credit with CS 4743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5753 Representation Learning
Prerequisites: CS 5783
Description: This course introduces the field of representation learning, a key aspect of machine learning that focuses on automatically extracting data features, rather than manually crafting them. The course covers several modern deep learning techniques, such as neural networks, auto-encoders, attention, domain-specific representation learning tasks, contrastive learning, and knowledge distillation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5763 Responsible AI Development and Deployment in Healthcare
Prerequisites: CS 5783, HCA 5013, HCA 5133
Description: This course provides a comprehensive exploration of the development, implementation, and management of AI systems in healthcare, with a special emphasis on ethical, regulatory, and human-centered considerations. The course will cover the technical foundations of AI/ML, explainable AI (XAI) models, and the challenges of data bias, security, and privacy specific to healthcare applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5773 Computational Neuroscience
Prerequisites: CS 3353 with a grade of C or higher.
Description: Students will be introduced to the field of Computational Neuroscience. Throughout the course, we will explore mathematical and computational models that attempt to fit and predict the behavior of neurons and nervous systems at various levels of abstraction. A strong emphasis will be placed on the cross-disciplinary nature of this field of research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5783 Machine Learning
Prerequisites: CS 3353 or CS 4343, and MATH 3013, each with a grade of "C" or better.
Description: A probabilistic, statistical approach to automated pattern discovery applied to large datasets. Constructing computational models with this information and assessing their behavior and reliability. Representing data and devising tools for discovering these models. Class focuses on the development and analysis of learning algorithms as well as the mathematical formulations underlying statistical processing. May not be used for degree credit as CS 4783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5793 Artificial Intell II
Prerequisites: CS 4793 with a grade of "C" or better.
Description: Advance knowledge representation and expert system building, including reasoning under uncertainty. Applications to planning, intelligent agents, natural language processing, robotics, and machine learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5813 Principles of Wireless Networks
Prerequisites: CS 4283 or ECEN 4283, with a grade of "C" or better.
Description: Wireless network operation, planning, mobility management, cellular and mobile data networks based on CDMA, TDMA, GSM, IEEE 802-11 WLANS, Adhoc networks, Bluetooth, power management, wireless geolocation and indoor positioning techniques. Same course as ECEN 5563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5823 Network Algorithmics
Prerequisites: CS 4283 and CS 4323, with a grade of "C" or better.
Description: Discusses principles of efficient network implementation-router architecture, end node architecture, data copying, timer maintenance, demultiplexing, forwarding table, lookups, switching, scheduling, IP traceback.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 5913 Large Language Models and Reasoning
Prerequisites: CS 5783 with minimum grade of "C".
Description: This course explores the logical reasoning abilities of Large Language Models (LLMs) and methods to enhance them. Students will examine cutting-edge research on LLM reasoning capabilities, limitations, and improvements, while drawing on classic AI reasoning concepts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 6000 Doctoral Dissertation
Prerequisites: Graduate standing and approval of advisory committee.
Description: Graduate standing and approval of advisory committee. Independent research under the direction of a member of the graduate faculty. For students working toward a PhD degree. Offered for variable credit, 2-15 credit hours, maximum of 40 credit hours.
Credit hours: 2-15
Contact hours: Contact: 2-15 Other: 2-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6210 Advanced Topics in Parallel and Distributed Systems
Prerequisites: CS 5113 with a grade of "C" or better.
Description: The state-of-the-art of parallel and distributed systems. Design, implementation, and analysis of parallel and distributed system architectures, protocols, and algorithms. Resource management, scheduling, and coordination. Internet-scale systems, middleware and services, virtualization, and distributed operating systems. Parallel and distributed programming paradigms: message-passing, shared memory, data-intensive, high performance, high throughput. Offered for variable credit, 2-6 credit hours, maximum of 12 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6240 Advanced Topics in Computer Organization
Prerequisites: CS 5113 and CS 5253, each with a grade of "C" or better.
Description: Structure and organization of advanced computer systems, parallel and pipeline computers, methods of computation, alignment networks, conflict-free memories, and bounds on computation time. Offered for variable credit, 2-6 credit hours, maximum of 12 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6253 Advanced Topics in Computer Architecture
Prerequisites: CS 5253 or ECEN 5253, with a grade of "C" or better.
Description: Innovations in the architecture and organization of computers, with an emphasis on parallelism. Topics may include pipelining, multiprocessors, data flow, and reduction machines. Same course as ECEN 6253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 6300 Advanced Topics in Programming Languages
Prerequisites: CS 5313 with a grade of "C" or better.
Description: Interpreter models of programming language semantics, Vienna definition language, lambda calculus, LISP definition; Knuth semantic systems and their formulation, translational and denotational semantics. May be repeated with change of topics. Offered for variable credit, 2-6 credit hours, maximum of 12 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6350 Advanced Topics in Operating Systems
Prerequisites: CS 5323 with a grade of "C" or better.
Description: Design and analysis of operating systems. Concurrent processes, server scheduling, models of auxiliary storage, memory management, virtual systems, and performance algorithms. May be repeated with a change in topics. Offered for variable credit, 2-6 credit hours, maximum of 12 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6400 Advanced Topics in Information Systems
Prerequisites: CS 5413 and CS 5423, each with a grade of "C" or better.
Description: Principles of distributed database systems. Overview of relational database management systems (DBMS) and computer networks, distributed DBMS architecture, distributed database design, distributed concurrency control, query processing and distributed DBMS reliability. Offered for variable credit, 2-6 credit hours, maximum of 12 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6500 Advanced Topics in Numerical Analysis
Prerequisites: MATH 5513 or CS 4513 with a grade of "C" or better, or MATH 4513 with a grade of "C" or better and consent of instructor.
Description: Systems of nonlinear equations, nonlinear least squares problems, iterative methods for large systems of linear equations, finite element methods, solution of partial differential equations. May be repeated with change of topics. Offered for variable credit, 2-6 credit hours, maximum of 12 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6600 Advanced Topics in Analysis of Algorithms
Prerequisites: CS 5413 with a group of "C" or better.
Description: Analysis of various algorithms. Sorting, searching, computational complexity, lower bounds for algorithms; NP-hard and NP-complete problems; parallel algorithms; proof of correctness of algorithms. May be repeated with change of topics. Offered for variable credit, 2-6 credit hours, maximum of 12 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6620 Advanced Topics in Applied Algorithms
Prerequisites: CS 4343 or CS 3353 with a grade of "C" or better, or consent of instructor.
Description: Recent advances in the design and analysis of data structures and algorithms for real-world applications in diverse problem domains. Problem domain designated for the course will differ in each offering and with instructor's interests. Core topics include mathematical modeling of complex applied problems, and studies of relevant fundamental algorithmic techniques and their experimental analysis on real datasets. Offered for 3 fixed credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

CS 6623 Algebraic Structures of Formal Grammars
Prerequisites: CS 5313 and CS 5653; all with a grade of "C" or better.
Description: Context-free languages, Kleene languages, Dyck languages, context-sensitive languages; use of algebraic systems to define languages; linear bounded automata.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6700 Advanced Topics in Artificial Intelligence
Prerequisites: CS 5793 with a grade of "C" or better, or consent of instructor.
Description: Machine learning; computer perception and robotics; logic programming; natural language understanding; intelligent agents; medical informatics. May be repeated with change of topics. Offered for variable credit, 2-6 credit hours, maximum of 12 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Computer Science

CS 6800 Advanced Topics in Computing Networks
Prerequisites: CS 5283 with a grade of "C" or better; Graduate standing in Computer Science; consent of instructor.
Description: Large scale embedded networks, deep-space networking, ubiquitous computing, optical networking, Next Generation Internet. May be repeated with change of topics. Offered for variable credit, 2-12 credit hours, maximum of 12 credit hours.
Credit hours: 2-12
Contact hours: Lecture: 2-12 Contact: 2-12
Levels: Graduate
Schedule types: Lecture
Department/School: Computer Science

Construction Engineering Technology (CET)

CET 1213 Introduction to Construction
Description: Overview of the entire construction industry with emphasis on construction materials, methods and systems. Both building and heavy highway construction drawings and their interpretation. Previously offered as CMT 1213 and CMT 1214.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 2003 Construction and Culture
Description: Analyzes the cultural context of construction internationally, emphasizing its centrality in the evolution and expansion of built environments as expressions of ethical and historical value systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 2203 Construction Drawings (for Non-Majors)
Description: Principles of graphic communication are applied to reading and drawing construction plans, with emphasis to fire protection systems. Does not meet CMT degree requirements. (Online course for non-CMT majors). Previously offered as CMT 2203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 2253 Printreading & BIM
Prerequisites: Grade of "C" or better in MATH 1513 or MATH 1613 or MATH 1715 or MATH 1813 or MATH 2144 or ALEKS score greater or equal to 56 or permission of instructor.
Description: Principles of 2D and 3D graphic communication are applied to reading and drawing construction plans. Techniques for measuring items of construction work from plans and specifications are also covered. Previously offered as CMT 2253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 2263 Estimating I
Prerequisites: Grade of “C” or better in CET 1213 and CET 2253, and ALEKS>56 or MATH 1513 with a grade of "C" or higher, or MATH 1613 with a "C" or higher, or MATH 1813 with a "C" or higher or MATH 2144 with a "C" or higher or permission of instructor.
Description: Quantity take-off with emphasis on excavation, formwork and concrete, masonry, rough carpentry and miscellaneous specialty items. Previously offered as CMT 2263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 2333 Construction Practices and Procedures
Prerequisites: "C" or better in CET 1213.
Description: Light frame and commercial construction. Foundation layout, framing and finish work, site investigations, excavation, precast concrete, tilt up, structural steel and metal building construction and project management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 2343 Concrete Technology
Prerequisites: Grade of “C” or better in (CET 1213 and CMT 1213) and (CMT 2353 or CET 2253) or permission of department.
Description: Fundamentals and practical application of concrete and concrete making materials including admixtures. Proportioning concrete mixtures. Batching, mixing, conveying, placing, finishing, and curing concrete. Hot and cold weather concreting, jointing, volume change and crack control. Previously offered as CMT 2343 and CMT 2351 and CMT 2352.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

CET 3163 Field Engineering Applications
Prerequisites: Grade of "C" or better in CET 2263 and ENSC 2113, or permission of department.
Description: Construction sequencing and methods and basic timber structural design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 3213 Soft Skills for Effective Interpersonal Communication (S)
Description: A study of personal one-on-one communication skills to improve effective intrapersonal communication. The course also relates intrapersonal skills to successful teamwork and teambuilding and becoming and presenting the best version of yourself.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage
General Education and other Course Attributes: Society & Human Behavior

CET 3273 Scheduling Construction Projects
Prerequisites: Grade of "C" or better in CMT 2263, or CET 2263 or permission of department.
Description: Scheduling basics, including bar charts and critical-path methods; manual and computer techniques using current software; emphasis on using schedules for construction project management. Previously offered as CMT 3273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 3322 Construction Practicum I
Prerequisites: Grade of "C" or better in (CMT 1213 and CET 1213) and (CMT 2253 or CET 2253), or permission of department.
Description: Supervised field experience in construction; 400 hours minimum documented time required. Previously offered as CMT 3331 and CMT 3322.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 3323 Theory of Built Structures
Prerequisites: A grade of "C" or better in (MATH 2123 or MATH 2144) and (GENT 2323 or ENSC 2113) or permission of the department.
Description: The study of equilibrium of structural systems and stresses and strains that occur in structural members of the built environment. Previously offered as CMT 3323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 3332 Construction Practicum II
Prerequisites: Grade of "C" or better in (CMT 2263 or CET 2263), (CMT 3322 or CET 3322) and CIVE 3614 or permission of department.
Description: Supervised temporary, full-time employment in construction, emphasizing field and office engineering and a variety of project management functions; 400 hours minimum documented time required. Previously offered as CMT 3332 and CMT 3333.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 3364 Structures I
Prerequisites: Grade of "C" or better in (CMT 2343, CET 2343, or CMT 2351) and (CMT 3323, CET 3323 or GENT 3323 or ENSC 2143) and (MATH 2133 or MATH 2153) and (PHYS 1214 or PHYS 2114) and (CMT 3322 or CET 3322) and (CMT 3273 or CET 3273).
Description: Methods of structural analysis applicable to construction; design of timber structures and forms for concrete structures. Previously offered as CMT 3363 and CMT 3364.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

CET 3432 Principles of Site Development
Prerequisites: Grade of "C" or better in CET 2343 or ENSC 2113 or permission of department.
Description: Site layout, vertical and horizontal control, surveying instrument adjustments, site investigations, excavations, site drainage and geotechnical considerations. Previously offered as CET 3433, CMT 3433 and CMT 2333.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 3443 Environmental Building Systems (Non-Majors)
Prerequisites: Grade of "C" or better in ENGR 1322 or CMT 2253 or ARCH 3263 and grade of "C" or better in (PHYS 1114 or PHYS 2014), or permission of department.
Description: An introductory level knowledge of plumbing, heating, air-conditioning, electrical and lighting systems as applied to construction and construction-related projects. May not be used for degree credit with CET 3463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 3463 Environmental Building Systems
Prerequisites: Grade of "C" or better in CET 2253 or CMT 2253 and (PHYS 1214 or PHYS 2114) or permission of department.
Description: Plumbing, heating, air-conditioning, electrical and lighting systems as applied to residences and commercial buildings. Previously offered as CMT 3463.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

CET 3554 Structures II
Prerequisites: Grade of "C" or better in (CET 3364 or CMT 3364).
Description: Analysis and design of elements in steel and reinforced concrete structures; review of shop drawings for both types of construction. Previously offered as CMT 3553 and CMT 3554.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

CET 4050 Advanced Construction Management Problems
Description: Special problems in construction management. Previously offered as as CMT 4050. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

CET 4103 Integrated Project Delivery Methods
Description: An introduction to contract delivery methods for construction projects from the perspective of Designers, Owners, and Builders. Best value selection is used as a tool to illustrate all perspectives for project management. Professional, ethical, and social responsibilities are presented through the perspectives of sustainability and lean bespoke manufacturing methods. May not be used for degree credit with CET 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4133 CAD and BIM for Construction Managers
Prerequisites: Grade of "C" or better in (CMT 1213 or CET 1213) and (CMT 2253 or CET 2253).
Description: Interpretation and production of construction drawings using computer aided drafting. Theory and use of Building Information Modeling software builds upon computer aided drafting skills. Previously offered as CMT 3633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4263 Estimating II
Prerequisites: Grade of "C" or better in CET 2263 (or CMT 2263); or permission of department.
Description: Extensive use of actual contract documents for quantity take-off, pricing and assembling the bid for several projects. Use of computers in estimating. Previously offered as CMT 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4273 Technology in Construction
Prerequisites: Grade of "C" or better in (CMT 3273 or CET 3273) and (CMT 4263 or CET 4263).
Description: Applications of various technologies including software for construction. Previously offered as CMT 4273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4283 Business Practices for Construction
Prerequisites: Grade of "C" or better in ACCT 2003, ACCT 2103, (CMT 3273 or CET 3273) and (CMT 4563 or CET 4563) or permission of department.
Description: Principles of management applied to construction contracting; organizing office and field staff; bonding, liens, financial management practices; introduction to the construction manager concept; schedule of values; construction billings. Previously offered as CMT 4283. May not be used for degree credit with CET 5283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4293 Construction Manager Concepts
Prerequisites: Grade of "C" or better in ENSC 2143, CET 3163, and CET 4283; or permission of department.
Description: Capstone course utilizing skills and knowledge of estimating, scheduling, bidding, construction management, CAD, TQM, partnering and safety; includes topics in leadership, motivation and the use of current project management software. Previously offered as CMT 4293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4333 Equipment Management for Constructors
Prerequisites: Grade of "C" or higher in (CMT 2263 or CET 2263), (CMT 2343 or CET 2343) and (ACCT 2003 or ACCT 2103) or permission of department.
Description: Selection and use of equipment, estimating equipment costs, estimating equipment production rates for all types of equipment used in building construction and heavy/highway construction. Previously offered as CMT 4333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4443 Construction Safety and Loss Control
Prerequisites: Grade of "C" or better in (CMT 2253 or CET 2253) and (CMT 4263 or CET 4263) or FPST 1373; or permission of department.
Description: A detailed study of OSHA Part 1926 - Construction Safety and Health Compliance and related safety topics including topics related to the OSHA 30-hour training program; concepts and methods of loss control. Previously offered as CMT 4443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4533 Heavy Civil Construction and Estimating
Prerequisites: Grade of "C" or better in (CMT 2263 or CET 2263) and (CMT 2343 or CET 2343 or CMT 2351) or CIVE 4273; or permission of department.
Description: Theory and application of contractor estimating and bidding procedures used in heavy and highway construction projects. Previously offered as CMT 4533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4553 Structural Steel Design & Connections
Prerequisites: Grade of "C" or better in CET 3163 and ENSC 2143 or permission of department.
Description: Analysis and design of steel beams and columns, bolted and welded connections, and rigging applications. May not be used for degree credit with CET 3554.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

CET 4563 Construction Law and Insurance
Prerequisites: A grade of "C" or better in (CMT 2263 or CET 2263) and SPCH 2713 and acceptance to the CMT Upper Division or permission of the department.
Description: Legal and insurance problems as they pertain to the construction industry. Previously offered as CMT 4563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 4663 Concrete Design & Formwork
Prerequisites: Grade of "C" or better in CET 3163 and ENSC 2143 or permission of department.
Description: Analysis and design of cast in place concrete with concrete formwork applications. May not be used for degree credit with CET 3364 and CET 3554.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

CET 5103 Integrated Project Delivery Methods
Prerequisites: Graduate standing.
Description: An introduction to contract delivery methods for construction projects from the perspective of Designers, Owners, and Builders. Best value selection is used as a tool to illustrate all perspectives for project management. Professional, ethical, and social responsibilities are presented through the perspectives of sustainability and lean bespoke manufacturing methods. May not be used for degree credit with CET 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 5283 Business Practices for Construction
Prerequisites: Minimum grade of "C" in ACCT 2003 or ACCT 2103 and CET 3273 or CMT 3273 and CET 4563 or CMT 4563 and Graduate standing.
Description: Principles of management applied to construction contracting; organizing office and field staff; bonding, liens, financial management practices; introduction to the construction manager concept; schedule of values; construction billings. May not be used for degree credit with CET 4283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 5322 Construction Practice
Prerequisites: Minimum grade of "C" in CET 1213 or CMT 1213 and CET 2253 or CMT 2253 and Graduate standing.
Description: Supervised field experience in construction involving authentic projects for which the student assumes a degree of professional responsibility; 400 hours minimum documented time required. May not be used for degree credit with CET 3332.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Graduate
Schedule types: Clinical
Department/School: Fire Constr Emergency Manage

CET 5443 Advanced Environmental Building Systems
Prerequisites: Graduate standing.
Description: Project management skills for the specialty contracting industry. The course incorporates codes, contract documents, productivity, coordination, project control and administration, scheduling, safety and project close-out to provide a strong foundation of effective project management from a specialty contracting perspective.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 5533 Heavy Civil Construction and Estimating
Prerequisites: Minimum grade of "C" in CMT 2263 or CET 2263 and CET 2343 or CMT 2343 or CMT 2351 and Graduate standing.
Description: Theory and application of contractor estimating and bidding procedures used in heavy and highway construction projects. May not be used for degree credit with CET 4533, CIVE 4183 or CIVE 5183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

CET 5563 Construction Law and Insurance
Prerequisites: Minimum grade of "C" in CET 2263 or CMT 2263 and SPCH 2713 and Graduate standing.
Description: Legal and insurance problems as they pertain to the construction industry. May not be used for degree credit with CET 4563 or CIVE 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

Counseling Psychology (CPSY)

CPSY 1111 Introduction to the Behavioral Health Aid Program
Description: Serves as the initial step in the Behavioral Health Aid Program, providing a foundational overview of the behavioral health field and the structure of the micro-credential program. Students will be introduced to the core concepts, career pathways, and ethical considerations essential for aspiring behavioral health aides. This course is the first in the "Core Principles of Tribal and Community Behavioral Health" micro-credential series, setting the stage for further specialized learning toward becoming a Behavioral Health Practitioner. May not be used for degree credit with CPSY 5111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1113 Career: Journey of A Lifetime
Description: Assists students in exploring career options through increased understanding of self and expanded knowledge of occupational information. Includes a study of the decision-making process and a look at the present and future changing world of work. Previously offered as CPSY 1112 and ABSE 1112.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1121 Introduction to Behavioral Health History and Systems
Description: Building upon the introduction to the behavioral health field, delves into the history and evolution of behavioral health services and systems. Students will explore significant historical milestones, key legislative changes, and the current structure of behavioral healthcare delivery. This course continues the "Core Principles of Tribal and Community Behavioral Health" micro-credential, providing essential context for understanding contemporary practices and the systems within which behavioral health aides operate. May not be used for degree credit with CPSY 5121.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1131 Introduction to Behavioral Health Providers and Disciplines
Description: Introduces the diverse array of professionals and disciplines within the behavioral health field. Roles, training, scopes of practice, and collaborative interactions among providers such as psychologists, psychiatrists, social workers, counselors, and case managers. Completes the "Core Principles of Tribal and Community Behavioral Health" micro-credential, equipping students to understand the collaborative landscape and the various team members they will interact with as behavioral health aides. May not be used for degree credit with CPSY 5131.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1141 First Americans, Indigenous Populations, and Community-Based Care
Description: Introduces culturally responsive and ethical approaches to community-based care for First Americans and Indigenous populations; a key part of the "Case Monitoring: Ethics and Documentation in Cultural Context" micro-credential. Students explore historical contexts, cultural values, health disparities, and sovereignty issues impacting these communities. Emphasis placed on ethical considerations, respectful engagement, and appropriate documentation strategies when providing care in community-based settings that honor Indigenous world views. May not be used for degree credit with CPSY 5141.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1151 Ethics, Documentation, and Consent through an Indigenous Lens
Description: Comprehensive examination of ethical principles, documentation standards, and informed consent procedures for community-based behavioral health services. Building on foundational concepts of culturally responsive care (introduced in CPSY 1141), apply ethical decision-making models, maintain accurate, confidential, and timely clinical records, and navigate the informed consent process to protect client rights in diverse community settings. Core component of the "Case Monitoring: Ethics and Documentation in Cultural Context" micro-credential. May not be used for degree credit with CPSY 5151.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1161 Tribal Presenting Concerns and Diagnostic Considerations
Description: Common behavioral health presenting concerns in community settings. Provides an overview of diagnostic classification systems relevant to the role of a behavioral health aide. Basic signs and symptoms of various conditions, fundamentals of diagnostic frameworks & how to ethically document observations & support referral processes. Completes the "Case Monitoring: Ethics and Documentation in Cultural Context" micro-credential by integrating introductory assessment skills with ethical & documentation principles established in prior coursework. May not be used for degree credit with CPSY 5161.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1171 Child Development in Tribal Contexts
Description: Provides a foundational overview of theories and milestones across physical, cognitive, social, and emotional domains of development among indigenous children in tribal communities. Students will examine the influential roles of biological, psychological, and socio-cultural factors that shape the development of individuals and members in tribal communities. This course is the first in the "Lifespan Development and Family Systems: Knowledge and Skills in Tribal Contexts" micro-credential. May not be used for degree credit with CPSY 5171.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1181 Adult Development In Tribal Contexts
Description: Explores the development of indigenous adults and older adults in tribal communities. Examines theories and research related to physical, cognitive, personality, and social changes, as well as life transitions, challenges, and opportunities faced by indigenous adults in tribal communities. This course continues the "Lifespan Development and Family Systems: Knowledge and Skills in Tribal Contexts" micro-credential. May not be used for degree credit with CPSY 5181.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1191 Tribal Family Culture
Description: Introduces foundational theories and concepts to examine the indigenous family as a complex emotional and relational unit. Students will explore various tribal family forms, communication patterns, norms, roles, rules, and rituals, analyzing how cultural dynamics impact behavior. Completing the "Lifespan Development and Family Systems: Knowledge and Skills in Tribal Contexts" micro-credential, this course provides an essential framework for understanding individuals within their tribal family. May not be used for degree credit with CPSY 5191.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 1511 Behavioral Health Aid Field Experience I
Description: This initial field experience course provides students with practical, supervised exposure to BH settings, with a focus on foundational helping roles, potentially aligning with peer support principles. Students will observe & begin to apply basic communication skills, ethical conduct, & person-centered approaches under the direct guidance of an agency-approved licensed BH provider. This course is designed to integrate classroom learning with real-world practice and requires a minimum of 15 documented hours of field experience to support the BHA I - Peer Support certification level.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2211 Common General Behavioral Health Concerns
Description: Introduces students to a range of common general behavioral health concerns encountered in various settings, such as mood disorders, anxiety disorders, trauma-related conditions, and psychotic disorders. Students will learn about basic symptomology, prevalence, and foundational approaches to support individuals. This course is the first in the "Knowledge and Skills for Professional and Ethical Practice" micro-credential, providing essential knowledge for recognizing and appropriately responding to diverse behavioral health needs. May not be used for degree credit with CPSY 5211.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2221 Substance Use, Abuse, and Healing in the Tribal Contexts
Description: Building on the overview of general behavioral health concerns, provides focused examination of substance use and addiction. Explores different classes of substances, models of addiction, risk and protective factors, common co-occurring conditions, and evidence-informed approaches to prevention, screening, brief intervention, and healing relevant to a behavioral health aide. Continues the "Knowledge and Skills for Professional and Ethical Practice" micro-credential, deepening understanding of a significant area of behavioral health. May not be used for degree credit with CPSY 5221.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2231 HIV/AIDS and Infectious Diseases
Description: Examines the critical intersection of BH with HIV/AIDS and other infectious diseases, addressing the impact on individuals and communities. Modes of transmission, prevention strategies, treatments adherence considerations, and significant psychosocial challenges faced by affected individuals, such as stigma, mental health comorbidities, and disclosure. This course completes the "Knowledge and Skills for Professional and Ethical Practice" micro-credential, broadening the scope of health issues relevant to the practice of behavioral health aides. May not be used for degree credit with CPSY 5231.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2241 Case Management Theory for Tribal Behavioral Health Services
Description: Fundamental theories, principles, and models of case management within tribal behavioral health services settings. Core functions of case management, including engagement, assessment, planning, linkage, monitoring, and advocacy, as well as the ethical, legal, and cultural considerations for effective practice with indigenous individuals and tribal communities. This course is the first in the "Linking to Community Resources: Case Management and Community Networking" micro-credential, providing the groundwork for person-centered case management. May not be used for degree credit with CPSY 5241.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2251 Applied Case Management for Tribal Behavioral Health Services
Description: Focuses on the practical application of case management skills in diverse tribal behavioral health and human service contexts. Learn and practice specific techniques for client engagement, comprehensive needs assessment, collaborative service planning, effective resource linkage, interagency collaboration and ongoing progress monitoring. This course within the "Linking to Comm Res: Case Mgmt and Comm Networking" micro-credential emphasizes the core skills necessary for effective case management strategies. May not be used for degree credit with CPSY 5251.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2261 Case Management: Case Studies of Tribal Populations
Description: Integrates theoretical knowledge and applied skills in case management through analysis and discussion of diverse case studies. Apply critical thinking and problem-solving skills to complex client scenarios, addressing ethical dilemmas, service coordination challenges, documentation requirements, and cultural considerations across behavioral health populations. Completes the "Linking to Comm Res: Case Mgmt and Community Networking" micro-credential, enhancing students' ability to navigate & document real-world case management situations. May not be used for degree credit with CPSY 5261.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2271 Indigenous Approaches to Maintaining Health, Wellness, and Balance
Description: Explores individual strategies for promoting and maintaining holistic health, wellness and balance as an approach to preventing behavioral health concerns and enhancing overall quality of life. Examines concepts such as resilience, stress management, self-care, mindfulness and the impact of lifestyle factors (e.g., nutrition, sleep, exercise) on mental and physical well-being. First course in the "Planning Services: Prevention Strat and Sust Practice" micro-credential, emphasizing proactive and personal approaches to sustaining well-being. May not be used for degree credit with CPSY 5271.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2281 Community Approach to Prevention
Description: Building on the principles of individual wellness, examines community-level approaches to prevention of BH problems & promotion of population well-being. Prevention models, the importance of identifying community-specific risk & protective factors, & strategies for developing, implementing & evaluating culturally responsive community-based prevention programs. "Planning Srvs: Prev Strat & Sust Prac" micro-credential emphasizes role of community engagement, collaboration & systems thinking. May not be used for degree credit with CPSY 5281.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2291 Public Health and Global Prevention Strategies
Description: Provides a broad overview of public health principles & diverse global strategies for the prevention of BH conditions & related societal issues. Epidemiological concepts, role of health policy, impact of social determinants of health & various international approaches to prevention, considering cultural diversity & global health disparities. This course completes the "Planning Srvs: Prev Strat & Sust Prac" micro-credential, offering a macro-level perspective on promoting well-being & addressing health inequities worldwide. May not be used for degree credit with CPSY 5291.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 2521 Behavioral Health Aid Field Experience II
Description: This second field experience course builds upon initial practical exposure, with an emphasis on skills relevant to case management support roles in behavioral health. Under supervision, students will engage in activities related to client engagement, understanding assessment processes, observing service planning, identifying community resources, and elements of client advocacy. This course applies classroom knowledge to practical tasks relevant to case support and requires a minimum of 15 documented hours of field experience to support the BHA II - Case Manager certification level.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3003 Introduction to Counseling and Related Professions
Description: Professions related to counseling such as career counseling, community mental health counseling, school counseling, and substance abuse counseling are examined. Students will also learn about diversity and legal and ethical issues within counseling professions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3013 Introduction to Helping Skills
Prerequisites: Upper division standing and successful completion of CPSY 3003.
Description: This course serves as a general overview of applied helping skills for those who are considering the counseling profession or related professions as a career. Students will learn major counseling theories and will practice basic helping skills. Instructional methods will include lecture, small-group interaction, discussion, and role plays.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3023 Mental Health in Schools and the Community
Description: An introduction to mental health issues in school and community settings for education or other helping profession majors. Students will learn about topics such as signs of depression; substance abuse; anxiety, including test anxiety; crisis prevention and response; suicidality and violence in schools; bullying; domestic violence; and cyber-citizenship.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3311 Behaviorism
Description: Provides comprehensive introduction to the principles, theories and historical development of behaviorism, exploring how environmental factors shape learning and observable behavior. Classical conditioning, operant conditioning, and observational learning, along with their applications in understanding and modifying human and animal behavior. This course is the first in the "Psychophysiology and Beh: Clin Scrn, Assmnt, and Interv Techs" micro-credential, establishing an understanding of behavior before exploring its physiological underpinnings. May not be used for degree credit with CPSY 5311.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3320 Seminar in Counseling Psychology
Description: In-depth exploration of contemporary topics in counseling psychology. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 3321 Neurology
Description: Fundamental structures and functions of the human nervous system as they relate to psychology and behavior. Students will explore basic neuroanatomy (brain structures, pathways), neural communication (neurotransmission), sensory and motor systems, and the neurological underpinnings of various cognitive and emotional processes. This course within the "Psychophysiology and Behavior: Clinical Screening, Assessment, and Intervention Techniques" micro-credential aims to connect observable behavior to its essential neurological basis. May not be used for degree credit with CPSY 5321.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3331 Integrating Psychopharmacology with Traditional Healing Practices
Description: Explores the foundational principles of psychopharmacology, focusing on how psychoactive drugs affect the brain, nervous system, behavior & mental processes. Learn about different classes of psychotropic medications used in treating BH conditions, their mechanisms of action, intended therapeutic uses, common side effects & general considerations relevant for BH support roles in tribal communities. Final course in "Psychophysiology & Behavior: Clinical Screening, Assessment, and Intervention Techniques" micro-credential. May not be used for degree credit with CPSY 5331.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3341 Intakes and Motivational Interviewing
Description: Introduces essential skills for initiating the helping process, conducting client intakes & utilizing the principles & techniques of motivational interviewing. Learn to gather pertinent client information in a structured manner, build rapport, establish a collaborative working alliance & apply motivational interview strategies to enhance client engagement & readiness for positive change. First in the "Working with Others: Cultiv Comm Skills and Pos Relationships" micro-credential, emphasizing critical skills for early-stage client interactions. May not be used for degree credit with CPSY 5341.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3351 Community-Based Microskills in Tribal Settings
Description: Building upon initial client engagement techniques, provides an in-depth focus on the fundamental psychotherapeutic micro skills essential for developing & maintaining effective helping relationships. Learn, practice & refine communication & counseling techniques such as active listening, empathy, reflection of feeling, paraphrasing, effective questioning & constructive feedback. Course in the "Working with Others: Cultivating Communication Skills and Positive Relationships" micro-credential. May not be used for degree credit with CPSY 5351.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3361 Termination and Long-Term Treatment Planning
Description: Addresses the critical aspects of concluding helping relationships & developing effective long-term support & treatment plans. Explore best practices for planned & ethical termination, recognizing & managing client reactions to ending services, & working with clients to create sustainable plans for continued growth, relapse prevention & resource utilization. Navigate brief supportive encounters, from initiation to closure. Completes the "Working with Others: Cultivating Communication Skills and Positive Relationships" micro-credential. May not be used for degree credit with CPSY 5361.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3371 Treatment of Co-Occurring Disorders
Description: Assessment and treatment complexities associated with co-occurring disorders, defined as the simultaneous presence of mental health conditions and substance use disorders. Explore common combinations of these disorders, principles of integrated treatment approaches, screening and assessment considerations, and evidence-informed strategies for supporting clients. First in the "Special Issues in Behavioral Health Service" micro-credential, addressing a prevalent and challenging area in the field. May not be used for degree credit with CPSY 5371.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3381 Challenges in Behavioral Health Services
Description: Building upon the focus on specific client issues such as co-occurring disorders, examines a broader range of systemic, ethical & practical challenges in the delivery of BH services. Topics include addressing stigma, improving access to care, recognizing & mitigating health disparities, understanding workforce issues, complex service systems, & principles of crisis intervention. This course within the "Special Issues in Behavioral Health Service" micro-credential aims to equip students to better navigate common obstacles within the field. May not be used for degree credit with CPSY 5381.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3391 Special Populations
Description: Focuses on understanding unique BH needs, cultural contexts, & specific considerations for effective services to various populations. Groups explored may include children & adolescents, older adults, severe & persistent mental illness, justice-involved, veterans, LGBTQ+, & those from diverse racial, ethnic, or linguistic backgrounds. Explore culturally responsive, trauma-informed, & age-appropriate approaches. Completing the "Special Issues in BH Service" micro-credential, enhances adaptability, & competence in practice with diverse clients. May not be used for degree credit with CPSY 5391.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 3531 Behavioral Health Aid Field Experience III
Description: This third field experience course offers students opportunities to apply skills relevant to a behavioral health technician role within a supervised agency setting. Students will participate in supporting clinical and programmatic processes, assisting with basic psychoeducational and skills-based interventions under direct guidance, and functioning effectively as part of a treatment or service team. This course requires a minimum of 15 documented hours of field experience to support the BHA III - Behavioral Health Technician certification level.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4013 Field Experience in Counseling
Prerequisites: CPSY 3003 and CPSY 3013.
Description: A senior capstone/field experience for students considering graduate work in counseling psychology, school counseling, community counseling, or a counseling-related profession. The field experience provides students with the opportunity to apply the skills, knowledge, and techniques in an applied setting. Students can expect to gain an understanding of the philosophy, organization, and tasks of their field site to assist in guiding their decision for a future career path.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4411 Child-Centered Interventions in Tribal Contexts
Description: Explores child-centered intervention strategies for addressing common behavioral, emotional & developmental concerns among indigenous children in tribal communities. Theoretical foundations & practical applications of play therapy principles, communication techniques & selected evidence-informed interventions to address disorders among indigenous children. This course is the first in the "Providing Services: Evidence-Based Practices and Theory-Driven Treatment Approaches" micro-credential, supporting younger populations in tribal communities. May not be used for degree credit with CPSY 5411.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4421 Evidence-Based and Manualized Interventions
Description: Building on foundational therapeutic skills, provides overview of evidence-based practice & application of manualized. Examine principles for evidence-based treatments, explore the structure & utility of therapeutic models (CBT, DBT-informed skills), & learn about adapting these interventions for diverse populations. "Providing Services: Evidence-Based Practices and Theory-Driven Treatment Approaches" micro-credential emphasizes the importance of fidelity to research-supported protocols while maintaining clinical flexibility. May not be used for degree credit with CPSY 5421.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4431 Trauma-Informed Care in Tribal Communities
Description: Provides an understanding of TIC as an essential framework for working with trauma-affected indigenous individuals. Neurobiology of trauma, widespread impact of ACEs & other traumatic events & core principles of TIC (safety, trustworthiness, choice, collaboration). Strategies for creating safe, supportive & empowering environments that promote healing & resilience in tribal communities. Completes the "Providing Services: Evidence-Based Practices and Theory-Driven Treatment Approaches" micro-credential. May not be used for degree credit with CPSY 5431.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4441 Introduction to Community-Based Group Counseling in Tribal Contexts
Description: Introduction to fundamental theories, principles, and practices of group counseling. Therapeutic groups, foundational group dynamics, recognized stages of group development, ethical and legal considerations specific to group work, and the basic roles and skills of a group leader. This course is the first in the "Community Education and Advocacy: Skills for Work with Groups and Systems" micro-credential, establishing essential knowledge for understanding, planning, and eventually facilitating group therapeutic processes. May not be used for degree credit with CPSY 5441.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4443 Cultural Diversity in Professional Life (D)
Description: Knowledge, awareness and skills regarding cultural diversity in one's professional life. Previously offered as EDUC 4443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych
General Education and other Course Attributes: Diversity

CPSY 4451 Intermediate Therapeutic Group Counseling
Description: Building on introductory concepts of group work, focuses on intermediate-level skills for planning, initiating, facilitating, and effectively processing therapeutic groups. Learn and practice techniques for managing group dynamics, addressing challenging member behaviors, utilizing therapeutic factors and understanding the nuances of co-facilitation. This course in the "Comm Ed and Advocacy: Skills for Work with Groups and Systems" micro-credential emphasizes practical application and skill refinement in group leadership and process management. May not be used for degree credit with CPSY 5451.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4461 Advanced Therapeutic Group Counseling
Description: Explores advanced topics, specialized applications & complex challenges in therapeutic group counseling. Examine techniques for working effectively with diverse & special populations in group settings, managing intricate group dynamics, implementing co-leadership models with proficiency & utilizing advanced interventions tailored for specific types of groups of presenting problems. Part of the "Community Education and Advocacy: Skills for Work with Groups and Systems" micro-credential. May not be used for degree credit with CPSY 5461.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4471 Indigenous Principles and Practice of Clinical Supervision
Description: Introduces the fundamental principles, ethical guidelines, & best practices underpinning clinical supervision in BH & human service settings. Explore the distinct roles & responsibilities of supervisors & supervisees, critical legal & ethical issues in the provision of supervision, methods for delivering effective feedback & evaluation, & the pivotal importance of establishing a strong supervisory relationship. This course is the first in the "Professional Development: Clinical Supervision and Administration" micro-credential. May not be used for degree credit with CPSY 5471.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4481 Indigenous Clinical Supervision Models and Approaches
Description: Building upon foundational principles & practices, provides an in-depth examination of various established theoretical models & practical approaches to clinical supervision. Explore developmental models, psychotherapy-based models, process models, & integrative/ competency-based models of supervision, learning to critically assess & adapt their supervisory approach to meet diverse supervisee needs, learning styles, & developmental levels. This course is in the "Professional Development: Clinical Supervision and Administration" micro-credential. May not be used for degree credit with CPSY 5481.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4491 Competencies for Village-Based Supervision
Description: Focuses on developing essential competencies for providing effective & culturally attuned clinical supervision within village-based BH settings. Explore culturally responsive supervisory practices, complex ethical considerations unique to close-knit communities, innovative strategies for supervising in resource-limited environments & methods for fostering supervisee competence in community engagement & culturally grounded interventions. Part of the "Professional Development: Clinical Supervision and Administration" micro-credential. May not be used for degree credit with CPSY 5491.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 4541 Behavioral Health Aid Field Experience IV
Description: Allows students to integrate & apply comprehensive knowledge & increasingly advanced skills in a supervised BH setting, consistent with functions leading towards a BH provider role under appropriate licensure/credentialing. Engage in client-related activities, including co-facilitating groups, assisting with more complex case scenarios, or contributing to specialized agency projects, demonstrating greater initiative & critical thinking under supervision. Requires a minimum of 15 documented hours of field experience to support the BHA IV - Behavioral Health Provider certification level.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5000 Master's Thesis
Description: Consent of advisory committee chairperson. Report of research conducted by a student in the master's program in counseling. Credit given and grade assigned upon completion and acceptance of the thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 5111 Introduction to the Behavioral Health Aid Program
Description: Serves as the initial step in the Behavioral Health Aid Program, providing a foundational overview of the behavioral health field and the structure of the micro-credential program. Students will be introduced to the core concepts, career pathways, and ethical considerations essential for aspiring behavioral health aides. This course is the first in the "Core Principles of Tribal and Community Behavioral Health" micro-credential series, setting the stage for further specialized learning toward becoming a Behavioral Health Practitioner. May not be used for degree credit with CPSY 1111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5121 Introduction to Behavioral Health History and Systems
Description: Building upon the introduction to the behavioral health field, delves into the history and evolution of behavioral health services and systems. Students will explore significant historical milestones, key legislative changes, and the current structure of behavioral healthcare delivery. This course continues the "Core Principles of Tribal and Community Behavioral Health" micro-credential, providing essential context for understanding contemporary practices and the systems within which behavioral health aides operate. May not be used for degree credit with CPSY 1121.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5131 Introduction to Behavioral Health Providers and Disciplines
Description: Following exploration of behavioral health history and systems, introduces array of professionals and disciplines within the behavioral health field. Roles, training, scopes of practice, and collaborative interactions of various providers such as psychologists, psychiatrists, social workers, counselors, and case managers. Completes "Core Principles of Tribal & Community Behavioral Hlth" micro-credential, equipping students to understand the collaborative landscape and the various team members they will interact with as behavioral health aides. May not be used for degree credit with CPSY 1131.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5141 First Americans, Indigenous Populations, and Community-Based Care
Description: Introduces culturally responsive and ethical approaches to community-based care for First Americans and Indigenous populations, forming a key part of the "Case Monitoring: Ethics and Documentation in Cultural Context" micro-credential. Students explore historical contexts, cultural values, health disparities, and sovereignty issues impacting communities. Emphasis placed on ethical considerations, respectful engagement, and appropriate documentation strategies when providing care in community-based settings that honor Indigenous world views. May not be used for degree credit with CPSY 1141.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5151 Ethics, Documentation, and Consent through an Indigenous Lens
Description: Comprehensive examination of ethical principles, documentation standards, and informed consent procedures for community-based behavioral health services. Building on foundational concepts of culturally responsive care, apply ethical decision-making models, maintain accurate, confidential, and timely clinical records, and effectively navigate informed consent process to protect client rights in diverse community settings. Core component of the "Case Monitoring: Ethics and Documentation in Cultural Context" micro-credential. May not be used for degree credit with CPSY 1151.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5161 Tribal Presenting Concerns and Diagnostic Considerations
Description: Common behavioral health concerns encountered in community settings. Provides an overview of diagnostic classification systems relevant to the role of a behavioral health aide. Basic signs and symptoms of various conditions, fundamentals of diagnostic frameworks & how to ethically document observations & support referral processes. Completes the "Case Monitoring: Ethics and Documentation in Cultural Context" micro-credential by integrating introductory assessment skills with ethical & documentation principles established in prior coursework. May not be used for degree credit with CPSY 1161.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5171 Child Development in Tribal Contexts
Description: Provides a foundational overview of theories and milestones across physical, cognitive, social, and emotional domains of development among indigenous children in tribal communities. Students will examine the influential roles of biological, psychological, and socio-cultural factors that shape the development of individuals and members in tribal communities. This course is the first in the "Lifespan Development and Family Systems: Knowledge and Skills in Tribal Contexts" micro-credential. May not be used for degree credit with CPSY 1171.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5173 Gerontological Counseling
Description: An examination of mental health treatment modalities and approaches to counseling with older adults. An experiential component is included. Previously offered as ABSE 5173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5181 Adult Development in Tribal Contexts
Description: Explores the development of indigenous adults and older adults in tribal communities. Examines theories and research related to physical, cognitive, personality, and social changes, as well as life transitions, challenges, and opportunities faced by indigenous adults in tribal communities. This course continues the "Lifespan Development and Family Systems: Knowledge and Skills in Tribal Contexts" micro-credential. May not be used for degree credit with CPSY 1181.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5191 Tribal Family Culture
Description: Introduces foundational theories and concepts to examine the indigenous family as a complex emotional and relational unit. Students explore tribal family forms, communication patterns, norms, roles, rules, and rituals, analyzing how cultural dynamics impact behavior among indigenous individuals and their tribal family members. Completing the "Lifespan Development and Family Systems: Knowledge and Skills in Tribal Contexts" micro-credential, this course provides an essential framework for understanding individuals within their tribal family. May not be used for degree credit with CPSY 1191.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5211 Common General Behavioral Health Concerns
Description: Introduces students to a range of common general behavioral health concerns encountered in various settings, such as mood disorders, anxiety disorders, trauma-related conditions, and psychotic disorders. Students learn basic symptomology, general prevalence, and foundational approaches to support individuals experiencing concerns. This course is the first in the "Knowledge and Skills for Prof and Ethical Practice" micro-credential, providing essential knowledge for recognizing and appropriately responding to diverse behavioral health needs. May not be used for degree credit with CPSY 2211.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5221 Substance Use, Abuse and Healing in Tribal Contexts
Description: Building on the overview of general behavioral health concerns, provides focused examination of substance use and addiction. Explores classes of substances, models of addiction, risk and protective factors, common co-occurring conditions, and evidence-informed approaches to prevention, screening, brief intervention, and healing relevant to a behavioral health aide. Continues the "Knowledge and Skills for Professional and Ethical Practice" micro-credential, deepening understanding of a significant and prevalent area of behavioral health. May not be used for degree credit with CPSY 2221.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5231 HIV/AIDS and Infectious Diseases
Description: Examines critical intersection of BH with HIV/AIDS and other common infectious diseases, addressing the profound impact on individuals and communities. Modes of transmission, prevention strategies, treatments adherence considerations, and the significant psychosocial challenges faced by affected individuals, such as stigma, mental health comorbidities, and disclosure. This course completes the "Knowledge & Skills for Professional & Ethical Practice" micro-credential, broadening the scope of health issues relevant to practice. May not be used for degree credit with CPSY 2231.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5241 Case Management Theory for Tribal Behavioral Health Services
Description: Fundamental theories, principles, and models of case management within tribal behavioral health and human services. Core functions of case management, including engagement, assessment, planning, linkage, monitoring, and advocacy, as well as the ethical, legal, and cultural considerations for effective practice with indigenous individuals and tribal communities. This course is the first in "Linking to Community Resources: Case Management & Community Networking" micro-credential, providing the groundwork for person-centered case management. May not be used for degree credit with CPSY 2241.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5251 Applied Case Management for Tribal Behavioral Health Services
Description: Focuses on the practical application of case management skills in diverse tribal behavioral health and human service contexts. Learn and practice specific techniques for client engagement, comprehensive needs assessment, collaborative service planning, effective resource linkage, interagency collaboration and ongoing progress monitoring. This course within the "Linking to Comm Res: Case Mgmt and Comm Networking" micro-credential emphasizes the core skills necessary for effective case management strategies. May not be used for degree credit with CPSY 2251.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5261 Case Management: Case Studies of Tribal Populations
Description: Integrates theoretical knowledge & applied skills in case management through in-depth analysis & discussion of diverse case studies. Apply critical thinking and problem-solving skills to complex client scenarios, addressing ethical dilemmas, service coordination challenges, documentation requirements, & cultural considerations across behavioral health populations. Completes "Linking to Comm Res: Case Mgmt & Community Netwkg" micro-credential, enhancing students' ability to thoughtfully navigate & document real-world case management situations. May not be used for degree credit with CPSY 2261.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5271 Indigenous Approaches to Maintaining Health, Wellness and Balance
Description: Explores strategies for promoting & maintaining holistic health, wellness & balance as a foundational approach to preventing behavioral health concerns & enhancing overall quality of life. Examines concepts such as resilience, stress management, self-care, mindfulness & the impact of lifestyle factors (e.g., nutrition, sleep, exercise) on mental & physical well-being. First course in "Planning Services: Prevention Strat & Sust Practice" micro-credential, emphasizing proactive & personal approaches to fostering & sustaining well-being. May not be used for degree credit with CPSY 2271.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5281 Community Approach to Prevention
Description: Building on principles of individual wellness, examines community-level approaches to prevention of BH problems & promotion of population well-being. Prevention models e.g., universal, selective, indicated, the importance of identifying community-specific risk & protective factors, & strategies for developing, implementing & evaluating culturally responsive community-based prevention programs. "Plng Srvs: Prev Strat & Sust Prac" micro-credential emphasizes role of community engagement, collaboration & systems thinking in positive PH outcomes. May not be used for degree credit with CPSY 2281.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5291 Public Health and Global Prevention Strategies
Description: Provides broad overview of public health principles & diverse global strategies for prevention of BH conditions & related societal issues. Epidemiological concepts, role of health policy, impact of social determinants of health (e.g., poverty, education, discrimination) & various international approaches to prevention, considering cultural diversity & global health disparities. Completes "Planning Srvs: Prev Strat & Sust Prac" micro-credential, offering a macro-level perspective on promoting well-being & addressing health inequities worldwide. May not be used for degree credit with CPSY 2291.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5311 Behaviorism
Description: Provides comprehensive introduction to principles, theories and historical development of behaviorism, exploring how environmental factors shape learning and observable behavior. Classical conditioning, operant conditioning, and observational learning, along with applications in understanding and modifying human and animal behavior. This is the first in the "Psychophysiology and Beh: Clin Scrn, Assmnt, and Interv Techs" micro-credential, establishing a foundational understanding of behavior before exploring its physiological underpinnings. May not be used for degree credit with CPSY 3311.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5320 Seminar in Counseling Psychology
Description: Graduate standing. In-depth exploration of contemporary topics in counseling psychology. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Contact: 3-9 Other: 3-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 5321 Neurology
Description: Fundamental structures and functions of the human nervous system as they relate to psychology and behavior. Students will explore basic neuroanatomy (brain structures, pathways), neural communication (neurotransmission), sensory and motor systems, and the neurological underpinnings of various cognitive and emotional processes. This course within the "Psychophysiology and Behavior: Clinical Screening, Assessment, and Intervention Techniques" micro-credential aims to connect observable behavior to its essential neurological basis. May not be used for degree credit with CPSY 3321.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5323 Relational Cultural Theory
Description: The goal of this course is to gain an understanding of the theoretical foundation of the Relational Cultural Model of psychotherapy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5331 Integrating Psychopharmacology with Traditional Healing Practices
Description: Explores the foundational principles of psychopharmacology, focusing on how psychoactive drugs affect the brain, nervous system, behavior & mental processes. Learn about different classes of psychotropic medications used in treating BH conditions, their mechanisms of action, intended therapeutic uses, common side effects & general considerations relevant for BH support roles in tribal communities. Final course in "Psychophysiology & Behavior: Clinical Screening, Assessment, and Intervention Techniques" micro-credential. May not be used for degree credit with CPSY 3331.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5341 Intakes and Motivational Interviewing
Description: Introduces skills for initiating the helping process, conducting effective client intakes & utilizing principles & techniques of motivational interviewing. Learn to gather pertinent client information in a structured manner, build rapport, establish collaborative working alliance & apply motivational interviewing strategies to enhance client engagement & readiness for positive change. First in "Working with Others: Cultiv Comm Skills and Pos Relationships" micro-credential, emphasizing critical skills for early-stage client interactions. May not be used for degree credit with CPSY 3341.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5351 Community-Based Microskills in Tribal Settings
Description: Building upon initial client engagement techniques, provides an in-depth focus on the fundamental psychotherapeutic micro skills essential for developing & maintaining effective helping relationships. Learn, practice & refine core communication & counseling techniques such as active listening, empathy, reflection of feeling, paraphrasing, effective questioning & providing constructive feedback. Course in the "Working with Others: Cultivating Communication Skills and Positive Relationships" micro-credential. May not be used for degree credit with CPSY 3351.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5361 Termination and Long-Term Treatment Planning
Description: Addresses critical aspects of concluding helping relationships & collaboratively developing effective long-term support & treatment plans. Explore best practices for planned & ethical termination, recognizing & managing client reactions to ending services, & working with clients to create sustainable plans for continued growth, relapse prevention & resource utilization. Navigate full arc of brief supportive encounters, from initiation to closure. Completes the "Wkg with Others: Cult Comm Skills & Positive Relationships" micro-credential. May no be used for degree credit with CPSY 3361.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5371 Treatment of Co-Occurring Disorders
Description: Assessment and treatment complexities associated with co-occurring disorders, defined as the simultaneous presence of mental health conditions and substance use disorders. Explore common combinations of these disorders, the principles of integrated treatment approaches, screening and assessment considerations, and evidence-informed strategies for supporting clients with dual diagnoses. First in the "Special Issues in Behavioral Health Service" micro-credential, addressing a prevalent and challenging area in the field. May not be used for degree credit with CPSY 3371.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5381 Challenges in Behavioral Health Services
Description: Building upon the focus on specific client issues such as co-occurring disorders, examines a broader range of systemic, ethical & practical challenges encountered in the delivery of BH services. Topics include addressing stigma, improving access to care, recognizing & mitigating health disparities, understanding workforce issues, complex service systems, & principles of crisis intervention. This course within the "Special Issues in Behavioral Hlth Service" micro-credential aims to equip students to better understand & navigate common obstacles. May not be used for degree credit with CPSY 3381.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5391 Special Populations
Description: Focuses on understanding unique BH needs, cultural contexts, & specific considerations for providing effective services to various populations. Groups explored may include children & adolescents, older adults, severe & persistent mental illness, justice-involved, veterans, LGBTQ+, & diverse racial, ethnic, or linguistic backgrounds. Explore culturally responsive, trauma-informed, & age-appropriate approaches. Completing the "Sp Issues in BH Serv" micro-credential, enhances sensitivity, adaptability, & competence in practice. May not be used for degree credit with CPSY 3391.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5411 Community-Based Child-Centered Interventions in Tribal Contexts
Description: Explores child-centered intervention strategies for addressing common behavioral, emotional, & developmental concerns in children. Theoretical foundations & practical applications of play therapy, age-appropriate communication techniques & selected evidence-informed interventions for childhood disorders, emphasizing a developmentally sensitive & family-systems-informed approach. This course is the first in the "Adv BH Clinical Care" micro-credential, providing specialized knowledge for supporting younger populations in tribal communities. May not be used for degree credit with CPSY 4411.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5413 Child and Adolescent Counseling
Description: Counseling theories and techniques for working with children, adolescents, and their parents in individual and group counseling and consulting. Laboratory portion translates theory to practice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5421 Evidence-Based and Manualized Interventions
Description: Building on foundational therapeutic skills, provides a broad overview of evidence-based practice & application of manualized interventions. Examine principles of evidence-based treatments, explore structure & utility of therapeutic models (CBT, DBT-informed skills), & learn about adapting these interventions for diverse populations. "Providing Services: Evidence-Based Practices and Theory-Driven Treatment Approaches" micro-credential emphasizes the importance of fidelity to research-supported protocols while maintaining clinical flexibility. May not be used for degree credit with CPSY 4421.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5423 Crisis Intervention, Disaster Mental Health, and Trauma Counseling
Description: Prepares counselors, educators, and administrators to address the crisis/disaster situations which may arise in schools, colleges, and community mental health settings. Preparation includes what sort of events constitute a crisis, prevention efforts, preparedness, and crisis/disaster intervention strategies. Basics of trauma, and trauma counseling for counselors working in individual and group settings are covered for schools and community mental health settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5431 Trauma-Informed Care in Tribal Communities
Description: Provides a comprehensive understanding of TIC as an essential framework for working with trauma-affected indigenous individuals. Neurobiology of trauma, widespread impact of ACEs & other traumatic events & core principles of TIC (safety, trustworthiness, choice, collaboration). Strategies for creating safe, supportive & empowering environments that promote healing & resilience in tribal communities. Completes the "Providing Services: Evidence-Based Practices and Theory-Driven Treatment Approaches" micro-credential. May not be used for degree credit with CPSY 4431.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5433 Expressive Arts in Counseling
Description: Provides graduate students in counseling with an opportunity to learn the history, theoretical foundations, and practice of expressive arts in counseling. This course will be held in a seminar format with an experiential component and an emphasis on class discussions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5441 Introduction to Community-Based Group Counseling in Tribal Contexts
Description: Comprehensive introduction to the fundamental theories, principles, and practices of group counseling. Therapeutic groups, foundational group dynamics, recognized stages of group development, ethical and legal considerations specific to group work, and the basic roles and skills of a group leader. This course is the first in the "Community Education and Advocacy: Skills for Work with Groups and Systems" micro-credential, establishing essential knowledge for understanding, planning, and eventually facilitating group therapeutic processes. May not be used for degree credit with CPSY 4441.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5451 Intermediate Therapeutic Group Counseling
Description: Building on introductory concepts of group work, focuses on intermediate-level skills for planning, initiating, facilitating, and effectively processing therapeutic groups. Learn and practice techniques for managing group dynamics, addressing challenging member behaviors, intentionally utilizing therapeutic factors and understanding the nuances of co-facilitation. This course in the "Comm Ed and Advocacy: Skills for Work with Groups and Systems" micro-credential emphasizes practical application and skill refinement. May not be used for degree credit with CPSY 4451.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5453 Vocational and Career Information
Description: Local, state and national sources of occupational information about jobs and sociological factors related to career planning and worker effectiveness. Previously offered as ABSE 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5461 Advanced Therapeutic Group Counseling
Description: Explores advanced topics, specialized applications & complex challenges in therapeutic group counseling. Examine techniques for working effectively with diverse & special populations in group settings, managing intricate group dynamics, implementing co-leadership models with proficiency & utilizing advanced interventions tailored for specific types of groups of presenting problems. Part of the "Community Education and Advocacy: Skills for Work with Groups and Systems" micro-credential. May not be used for degree credit with CPSY 4461.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5471 Indigenous Principles and Practice of Clinical Supervision
Description: Introduces the fundamental principles, ethical guidelines, & best practices underpinning clinical supervision in BH & human service settings. Explore the distinct roles & responsibilities of supervisors & supervisees, critical legal & ethical issues in the provision of supervision, methods for delivering effective feedback & evaluation, & the pivotal importance of establishing a strong supervisory relationship. This course is the first in the "Professional Development: Clinical Supervision and Administration" micro-credential. May not be used for degree credit with CPSY 4471.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5473 Basic Counseling Skills
Prerequisites: Graduate standing.
Description: Basic attending and relationship building skills needed to develop an effective therapeutic relationship, establish counseling goals, and evaluate client outcomes. Previously offered as ABSE 5473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5481 Indigenous Clinical Supervision Models and Approaches
Description: Building upon foundational principles & practices, provides an in-depth examination of various established theoretical models & practical approaches to clinical supervision. Explore developmental models, psychotherapy-based models, process models, & integrative/ competency-based models of supervision, learning to critically assess & adapt their supervisory approach to meet diverse supervisee needs, learning styles, & developmental levels. This course is in the "Professional Development: Clinical Supervision and Administration" micro-credential. May no be used for degree credit with CPSY 4481.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5483 Mental Health Counseling
Description: Base of knowledge about the counseling profession, its history, philosophy, and identity. The roles and responsibilities of the professional counselor as therapist and advocate in working competently with culturally diverse populations in a socially and culturally diverse society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5491 Competencies for Village-Based Supervision
Description: Focuses on developing essential competencies for providing effective & culturally attuned clinical supervision within village-based BH settings. Explore culturally responsive supervisory practices, complex ethical considerations unique to close-knit communities, innovative strategies for supervising in resource-limited environments & methods for fostering supervisee competence in community engagement & culturally grounded interventions. Part of the "Professional Development: Clinical Supervision and Administration" micro-credential. May not be used for degree credit with CPSY 4491.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5493 Professional and Ethical Issues in Counseling
Prerequisites: Admission to community counseling, elementary or secondary school counseling graduate program or consent of instructor.
Description: Principles and issues of professionalism and ethics. Seminar format with special emphasis on student's thorough preparation for, and active participation in, class discussions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5503 Multicultural Counseling
Description: Emphasis on effective communication skills in cross-cultural counseling or helping relationships and the integration of theoretical knowledge with experimental learning. Psycho-social factors, life styles, etc. of various cultural and ethnic groups and their influence on the helping relationship. Previously offered as ABSE 5503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5513 Comprehensive School Counseling Programs
Description: Foundations of school counseling focusing on the knowledge and skills required to develop, implement, coordinate, and manage a comprehensive, developmental school counseling program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5523 Assessment in Counseling
Description: An introductory study of the psychological assessments most widely used in the fields of school and clinical counseling. Previously offered as ABSE 5520.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5533 Foundations of Play Therapy
Prerequisites: CPSY 5473.
Description: Overview of essential play therapy elements and principles, including history, theories and techniques, and modalities. Emphasis on observation and application of play therapy skills and techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5543 Career Development Theories
Description: Historical and contemporary viewpoints advanced by Ginsberg, Super, Holland, Roe, etc. Counselors are assisted in developing the theoretical and applied basis for developing school-based career education programs and for assisting individuals in career planning. Previously offered as ABSE 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5553 Theories of Counseling
Description: Exploration of the foundations of major individual counseling theoretical approaches with opportunities for personal reflection and application. Previously offered as ABSE 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5563 Conceptualization and Diagnosis in Counseling
Description: Conceptualization and diagnosis through a study of principles of understanding dysfunction in human behavior or social disorganization and provides an in-depth knowledge of use of the DSM classification system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5583 Group Process
Description: Group dynamics, theory and techniques applicable to working with people of all ages in various school and non-school settings. Group member competencies are stressed during the laboratory period. Previously offered as ABSE 5583.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Health Sci, Couns, Couns Psych

CPSY 5593 Counseling Practicum
Prerequisites: Grade of "B" or better in CPSY 5473, CPSY 5493, CPSY 5553, CPSY 5563, and CPSY 5583; admission to program or instructor consent.
Description: Supervised experience in human interaction processes of counseling and consulting with the major goal of facilitating positive growth processes through individual supervision. May be conducted in a variety of settings with a wide range of developmental levels. Previously offered as ABSE 5590.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 5663 Counseling And Sexuality
Prerequisites: Permission of instructor.
Description: Current trends in counseling clients with sexual problems, as well as clients with varying sexual orientations and identities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5673 Substance Abuse Counseling
Prerequisites: Permission of instructor.
Description: Current therapeutic trends, strategies, and modalities used in the treatment of addictions, as well as relapse prevention strategies and treatment of special populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5683 Internship In Counseling I
Prerequisites: Grade of "B" or better in CPSY 5593 and admission to counseling program.
Description: Supervised experience working and studying in a counseling agency or setting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5693 Internship In Counseling II
Prerequisites: Grade of "B" or better in CPSY 5683 and admission to counseling program.
Description: Supervised experience working and studying in a counseling agency or setting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5720 Workshop
Description: Professional workshops on various topics. Designed to meet unique or special needs of professionals in various mental health fields. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5773 Substance Abuse Counseling Theories
Description: Introduction to contemporary theories of addiction for advanced counseling, counseling psychology and related professional graduate students and for practicing mental health professionals. Content includes multicultural case studies utilizing motivational interviewing, moral theory, developmental theory, cognitive behavioral theories, attachment theory, and sociological theory. The focus is understanding theories related to addiction and relapse prevention.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5783 Substance Abuse Psychopharmacology
Description: This course covers the major areas of psychopharmacology, including the basic principles of pharmacology, neuroanatomy and neurotransmitter systems, and the properties, actions, and effects of different types of drugs. Students will learn how drugs alter psychological processes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 5793 Substance Abuse Counseling Internship
Description: A 300-hour field experience allows students to develop specific skills and knowledge surrounding the practice of substance abuse counseling under the direction of a clinical supervisor. Students will be able to apply learning theory and techniques in counseling situations; develop case management and resource allocation skills; determine appropriate assessments of clients; network with supervisors, colleagues, and professionals from a variety of agencies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6000 Doctoral Dissertation
Prerequisites: Consent of advisory committee chairperson.
Description: Report of research conducted by a student in the doctoral program in counseling psychology. Credit given and grade assigned upon completion and acceptance of the doctoral dissertation. Offered for variable credit, 1-9 credit hours, maximum of 25 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 6053 Ethical and Legal Issues in Professional Psychology
Prerequisites: Consent of instructor.
Description: Ethical and legal standards applied to the professional practice of psychology. Previously offered as CPSY 6503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6083 Principles of Counseling Psychology
Prerequisites: Admission to the doctoral program in counseling psychology.
Description: Development, theoretical foundations and applications of therapeutic models of counseling and psychology. Previously offered as ABSE 6083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6123 Adult Personality Assessment
Prerequisites: Admission to counseling, school, or clinical psychology program.
Description: Administration and interpretation of adult personality assessment instruments such as Rorschach, TAT and DAP. Previously offered as ABSE 6213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6153 Personality Theories
Prerequisites: Graduate standing.
Description: An in-depth analysis of personality theories and personality disorders. Previously offered as ABSE 6153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6163 Advanced Counseling Theories and Interventions
Prerequisites: Grade of "B" or better in CPSY 5553 (Theories) or other Master's level Theories course.
Description: Continued exploration of major individual counseling theoretical approaches with a particular focus on third-wave, experiential approaches. Provides intensive practice in both technical and conceptual skills with emphasis on self- awareness, case conceptualization, and racial-cultural considerations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6223 Beck's Cognitive Therapy
Prerequisites: Graduate standing in counseling, counseling psychology, school psychology, or clinical psychology; or consent of instructor.
Description: The theory and practice of Aaron T. Beck's cognitive therapy approach. Cognitive restructuring, problem-solving, imagery work, and cognitive case conceptualization skills to help clients with a variety of presenting problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6310 Advanced Practicum and Supervision
Prerequisites: Admission to counseling psychology program.
Description: For prospective counseling psychologists, counselor educators and supervisors, and practicing counselors. Supervised assistance in development of counseling, consulting, and supervising competencies. Previously offered as ABSE 6310. Offered for variable credit, 3-12 credit hours, maximum of 12 credit hours.
Credit hours: 3-12
Contact hours: Contact: 3-12 Other: 3-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 6313 Advanced Group Interventions
Prerequisites: Admission to counseling psychology program or consent of instructor.
Description: Discussion and exploration of various aspects of group development and treatment. Theory and application of theory. Various factors associated with group psychotherapy cohesion, dynamics and screening. Course previously offered as ABSE 6313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6323 Psychological Consultation
Prerequisites: Admission to graduate program in the SAHEP or psychology program.
Description: Models and strategies for the delivery of special services in the schools and other agencies that focus on serving the mental health needs of children, adolescents and adults. The use of consultation as a problem-solving alternative to the assessment/label approach. Students can receive credit in only one of the courses. Same course as EPSY 6323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6413 Counseling Psychology Practicum I
Prerequisites: Admission to the doctoral program in counseling psychology.
Description: For prospective counseling psychologists. Individual and group supervision and didactic experiences to facilitate the development of counseling psychology competencies with clients at practicum sites. Establishing therapeutic conditions conducive to growth and change.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 6423 Counseling Psychology Practicum II
Prerequisites: Grade of "B" or better in CPSY 6413.
Description: For prospective counseling psychologists. Individual and group supervision and didactic experiences to facilitate the development of counseling psychology competencies with clients at practicum sites. Integrating theory and research into the practice of counseling psychology.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 6433 Counseling Psychology Practicum III
Prerequisites: Grade of "B" or better in CPSY 6423.
Description: For prospective counseling psychologists. Individual and group supervision and didactic experiences to facilitate the development of counseling psychology competencies with clients at practicum sites. Integrating theory and psychological assessment skills into the practice of counseling psychology.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 6443 Counseling Psychology Practicum IV
Prerequisites: Grade of "B" or better in CPSY 6433.
Description: For prospective counseling psychologists. Individual and group supervision and didactic experiences to facilitate the development of counseling psychology competencies with clients at practicum sites. Building integrating consultation skills into the practice of counseling psychology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6543 Clinical Supervision
Prerequisites: Admission to clinical, counseling or school psychology doctoral program, or consent of instructor.
Description: Building the doctoral psychology student's knowledge base in theory and research of clinical supervision in psychology, and development and refinement of the student's supervision skills. Current theory and research in supervision, including a practical component.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6553 Advanced Practice in Marital and Family Treatment
Prerequisites: Admission to counseling, school or clinical psychology program.
Description: Advanced methods in assessment, diagnosis, and treatment of marital and family problems. Skill development, professionalism, ethics and case management. Dynamics of co-therapy and conjoint treatment. Case consultation format. Course previously offered as ABSE 6553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

CPSY 6560 Advanced Internship in Counseling
Description: Admission to the doctoral program in psychology. Designed to facilitate counseling effectiveness and to set the stage for a productive life of professional practice. Previously offered as ABSE 6560. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

CPSY 6850 Directed Reading
Description: Directed reading for students with advanced graduate standing. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

Curriculum & Instruction Ed (CIED)

CIED 1230 Reading and Study Skills for College Students
Description: Instruction and laboratory experience for the improvement of reading rate, vocabulary, comprehension, and study skills. Graded on pass-fail basis. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 2453 Introduction to Teaching and Learning
Prerequisites: Declaration of intention to pursue a program in Professional Education.
Description: Overview of teaching and learning in the 21st century so that students understand the foundations of education and basic pedagogy. This course includes the initial pre-professional clinical experience in schools, first through eighth grades. Required for full admission to Professional Education. Previously offered as CIED 2450.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Clinical, Lecture, Lecture Clinical
Department/School: Teaching, Learning, Ed Science

CIED 3005 Foundations of Literacy
Prerequisites: ENGL 1113, ENGL 1213, ENGL 2413.
Description: Survey of evaluation, selection and utilization of literature of childhood; introduces cognitive and linguistics foundations of literacy; language conventions needed to compose and comprehend oral and written texts. Work in school setting.
Credit hours: 5
Contact hours: Lecture: 5 Contact: 5
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 3133 Children's Literature Across the Curriculum
Description: Critical, analytical and instructional skills for teaching with culturally diverse literature for elementary and middle school learners. Integration of literature across the curriculum to develop critical thinking, social literacy, and inquiry skills. Previously offered as CIED 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 3253 Teaching Language Arts in the Elementary and Middle School
Prerequisites: ENGL 1113 and ENGL 1213 and ENGL 2413.
Description: Learning theory, content, and methods related to teaching spoken, written, and visual forms of communication. Focus is on listening, speaking, writing and on teaching knowledge, skills and strategies inherent in those processes. Stresses integration of central literacy components (reading, writing, speaking, listening to, and viewing a wide range of texts in a variety of forms) and across the curriculum, teaching diverse learners and perspectives, inquiry, and critical literacy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 3293 Teaching Reading in the Elementary and Middle School
Prerequisites: ENGL 1113 and ENGL 1213 and ENGL 2413.
Description: Learning theory, content and methods specifically related to teaching children to read a wide range of texts for a wide range of purposes. Understandings of central reading components such as print awareness, phonological/phonemic awareness, phonics, fluency, vocabulary, comprehension, and critical literacy. Best practices for teaching reading effectively for diverse learners with varied needs and interests. Includes program phonics exam.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 3313 Field Experience in the Secondary Schools
Prerequisites: Consent of instructor, 2.50 GPA, and passing scores on the Oklahoma General Education Test.
Description: Seminars, directed observation and participation in a particular subject area of the secondary/K-12 school. Experience in meeting the mental, social, physical, and cultural needs among children. Previously offered as CIED 3712.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Clinical, Lecture, Lecture Clinical
Department/School: Teaching, Learning, Ed Science

CIED 3622 Middle Level Education
Prerequisites: CIED 2453.
Description: Overview of the nature of young adolescents as well as an examination of the curriculum, instruction, and organization of middle grade schools. Also includes a field-based experience in a middle school. Previously offered as CIED 3623.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

CIED 3753 Teaching Social Studies through Inquiry
Prerequisites: Completion of CIED 3313 or consent of instructor.
Description: This course is designed to develop pre-service teachers' skills to teach social studies through an inquiry approach. Guided readings, discussions, group activities, and project based learning will focus on structuring an inquiry-based secondary classroom through the use of primary sources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4000 Field Studies in Education
Description: Independent study and/or field experiences, such as spending a semester in an experimental program working with handicapped children in schools, in-depth studies in research projects, internships with school personnel. Graded on a pass-fail basis. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 4005 Literacy Assessment and Instruction
Prerequisites: CIED 3005 or HDFS 3213.
Description: Provides a comprehensive survey of teaching strategies, formal and informal assessment, curriculum materials, theory, and research pertaining to reading, writing, spelling and oral language development at the primary and elementary school levels. Practical experiences required.
Credit hours: 5
Contact hours: Lecture: 4 Lab: 2 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

CIED 4012 Integration of Literacy
Prerequisites: CIED 4005; full admission to Professional Education.
Description: Integration of reading, writing, and oral language; integration of literacy instruction into the content areas in elementary school curriculum.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4041 Interdisciplinary Curriculum Design and Development
Prerequisites: Full admission to Professional Education and concurrent enrollment in 3430, 4012, 4153, 4323, 4353, and 4362.
Description: Planning and development of interdisciplinary teaching units for the elementary school classroom. Pedagogical approaches and materials for teaching integrated themes, as well as research on effective integrated teaching practices.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Teaching, Learning, Ed Science

CIED 4073 Elementary School Curriculum Design and Development
Prerequisites: Full admission to Professional Education.
Description: Students will understand and learn to apply the foundations of elementary curriculum, the processes of designing curriculum for elementary classrooms, the analysis of instructional practices, and the data driven decision making to improve student learning. May not be used for degree credit with CIED 5093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4093 Teaching Grammar in the Secondary Schools
Prerequisites: ENGL 4013 (or concurrent enrollment) or instructor permission is required.
Description: Inductive teaching of grammar and usage for writing and oral communication. Lessons include learning to teach literary devices, poetic nomenclature, etymology of idiomatic expressions, and such linguistic elements as homonyms, synonyms, and antonyms.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4103 Introduction to English Learners for Early Childhood and Elementary Teachers
Description: This course facilitates prospective early childhood and elementary education teachers' learning about how to educate English Learners in their classes, schools, and communities. Taking a comprehensive, learner-centered approach to research, theory, policy, and practice, topics covered include current trends, pedagogical strategies, and instructional theories related to English Learners in early childhood and elementary schools. May not be used for degree credit with CIED 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4133 Introduction to K-12 English Language Learners
Description: This course facilitates prospective teachers' learning about how to educate English Language Learners in their classes, schools, and communities. Taking a comprehensive, learner-centered approach to research, theory, policy, and practice, topics covered include current trends, pedagogical strategies, and instructional theories related to English Language Learners.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4194 Teaching Writing in the Secondary School
Prerequisites: ENGL 1113, ENGL 1213, ENGL 3203, all with grade of "B" or better; ENGL 4013 or concurrent or with instructor permission.
Description: Teaching secondary writing inductively in order to build on future students' reasoning skills ultimately leading to cogent, cohesive, audience-appropriate multimodal composition. Previously offered as CIED 4193.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4213 Introduction to Visual Arts in the Curriculum
Description: Provides an understanding of the theoretical basis for the use of art activities in developing sensory perception and aesthetic sensitivity as an integral part of the curriculum. Includes a wide range of opportunities for student involvement in experimentation and exploration with a variety of two- and three-dimensional art media. Emphasis on both creative expression and appreciation of the visual arts in the home, school and community as a vital aspect of instruction in the school, preschool level through grade eight. May not be used for degree credit with CIED 5350.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

CIED 4233 Literacy Assessment and Instruction
Prerequisites: CIED 3293 and CIED 3253.
Description: Selection, administration, and interpretation of a variety of formal and informal literacy assessments. Use of assessment results to plan, evaluate, and revise effective instruction for diverse learners within an assessment/evaluation/instruction cycle. Tutoring practicum is required.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

CIED 4243 Creativity and Critical Thinking in the K12 Classroom
Description: Preparation of teachers as facilitating critical thinking and creativity opportunities for elementary and secondary students. Skills in cross-curricular content integration, the elements and processes of appreciation and creation of multiple forms of art (performing, visual, digital, media, et. al) and pedagogical approaches to critical thinking competencies. May not be used for degree credit with CIED 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4263 Teaching and Learning Foreign Languages in the Elementary Schools (Grades 1-8)
Description: Purpose, selection and organization of foreign language curriculum content, teaching and learning theories, and procedure and evaluation of outcome for diverse students. Teaching techniques and materials for grades 1-8. May not be used for degree credit with CIED 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4313 Young Adult Literature
Prerequisites: Senior or Graduate level standing.
Description: Survey of print and non-print materials, including multicultural and multi-ethnic materials for young adults from middle school through high school. History, criticism, selection, and evaluation of young adult literature and exploration of its relation to the needs and interests of young people. May not be used for degree credit with CIED 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4323 Social Studies in the Elementary School Curriculum
Prerequisites: Full admission to Professional Education.
Description: Purposes, selection and organization of content, teaching and learning procedures, and evaluation of outcomes in elementary social studies. May not be used for degree credit with CIED 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4373 Classroom Environments and Experience
Description: Introduction to the design and management of the physical, social, intellectual aspects of the elementary classroom. Overview of the purposes, selection and organization of classroom management systems and teaching approaches. Directed observation and participation in classrooms. Previously offered as CIED 4362. May not be used for degree credit with CIED 5363.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

CIED 4450 Internship in Elementary Education
Prerequisites: Concurrent enrollment in CIED 4453 or CIED 4720 and CIED 4730, successfully pass the subject area test, and full admission to Professional Education.
Description: Advanced clinical experience as associate (student) teacher in schools, pre-kindergarten through grade eight. Graded on a pass-fail basis. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 4453 Senior Seminar in Elementary Education
Prerequisites: Concurrent enrollment in CIED 4450 and full admission to Professional Education.
Description: Legal and ethical issues, forms of assessment, including standardized testing, working with colleagues and other professionals, integration of performing arts including music and drama, and completion of a professional portfolio. Taken concurrently with student teaching in the final semester of the elementary education program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4463 Senior Seminar: Learning and Teaching in Diverse School Cultures
Prerequisites: Senior classification; full admission to Professional Education and concurrent enrollment in CIED 4450.
Description: Designing elementary classroom environments and curriculum that meet the needs of diverse populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4473 Reading for the Secondary Teacher
Prerequisites: Consent of instructor, 2.50 GPA, and passing scores on the Oklahoma General Education Test.
Description: Materials and procedures in the teaching of reading in secondary schools for content area teachers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4713 Teaching and Learning in the Secondary School
Prerequisites: Full admission to Professional Education and consent of instructor.
Description: Purposes, selection and organization of curriculum content, teaching and learning theories and procedures, and evaluation of outcomes for diverse students. Teaching techniques and materials for art, English, foreign languages, science, and the social studies. This course MUST be taken the semester prior to student teaching/internship. May not be used for degree credit with CIED 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4720 Internship in the Secondary Classroom
Prerequisites: CIED 4713, CIED 4724 or CIED 4734 or CIED 4744, full admission to Professional Education and successfully passing the subject area test in the content area of Internship.
Description: Supervised observation and student teaching in fields in which the student intends to qualify for teaching certification. Development of awareness of and experience with mental, social, physical and cultural differences among adolescents. Graded on a pass-fail basis. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 4724 Classroom Management in the Multicultural PK-12/ Secondary School
Prerequisites: Full admission to Professional Education.
Description: An overview of classroom management and discipline approaches, parental involvement, school climate, and community relations. Includes field experiences in a diverse secondary classroom. Course previously offered as CIED 4723. May not be used for degree credit with CIED 5724.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Clinical, Lecture, Lecture Clinical
Department/School: Teaching, Learning, Ed Science

CIED 4734 Planning and Management in the Multicultural Foreign Language K-12 Classroom
Prerequisites: Full admission to Professional Education.
Description: An overview of classroom management and discipline approaches, parental involvement, school climate, and community relations. Includes field experiences in a diverse secondary classroom.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

CIED 4744 Planning and Management in the Multicultural Art K-12 Classroom
Prerequisites: Full admission to Professional Education.
Description: An overview of classroom management and discipline approaches, parental involvement, school climate, and community relations. Includes field experiences in a diverse secondary classroom. Previously offered as CIED 4730.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

CIED 4813 Second Language Acquisition Research and Pedagogy
Description: The overall focus of this course is on introduction to theory, research, and practice in the fields of first and second language acquisition; understanding of language acquisition at various developmental levels, both within and outside of the classroom; and application of language acquisition theories to instructional practice. May not be used for degree credit with CIED 5843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 4823 Foreign Language Instruction, Curriculum, and Assessment: Grades PK-12
Prerequisites: CIED 4813.
Description: History of foreign language education and teaching; understanding the role of foreign language in PK-12 programs; application of national and state foreign language learning standards in instructional planning; application of approaches, methods, strategies, and techniques of foreign language teaching; utilization of assessment tools to obtain information about foreign language learners' learning; and selection, evaluation, development, and modification of foreign language curricula. May not be used for degree credit with CIED 5863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5000 Master's Report or Thesis
Prerequisites: Consent of adviser.
Description: Students studying for a master's degree enroll in this course for a total of 2 credit hours if they write a report or 6 hours if they write a thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 5010 Practicum for Early Career Secondary Teachers
Prerequisites: Admission into the Secondary Teaching Graduate Certificate Program or permission of instructor.
Description: Facilitated mentoring support for performing professional functions in classroom settings for early career teachers. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science
Additional Fees: EHS Outreach Tuition and fee of $299 per credit hour applies.

CIED 5033 Teaching Foreign Languages in the Schools K-12
Description: Curriculum, materials, methods and procedures related to foreign languages (grades K-12).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5043 Issues in Teaching
Description: Current issues and trends in teaching theory, practice and research with emphasis on teacher reflection.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5053 Curriculum Issues
Description: A study of curriculum that includes philosophy, history, decision-making, major concepts and terms.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5073 Pedagogical Research
Description: Theory and application of pedagogical inquiry with emphasis on teacher as researcher, pedagogical question posing, and techniques of pedagogical inquiry, including narrative, autobiography, case writing, action research, and artifactual documentation of teacher performance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5093 Curriculum Design
Description: The theorizing and practical development of course and curriculum design. Focus on learning sciences, social implications, and interpreting student goals through state and national standards.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5123 Curriculum in the Secondary School
Description: Contemporary curricular issues, philosophies, and points of view in secondary school education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5143 Language Arts in the Curriculum
Description: Content and current issues in the language arts. Materials and methods for teaching the communication skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5153 Advanced Studies in Children's Literature
Description: Study of children's literature within the prevailing political, economic and social factors influencing cultural patterns and values. The tools of research in children's literature and the nature and direction of contemporary children's book publishing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5173 Kindergarten-Primary Curriculum
Description: Study of kindergarten-primary curriculum, including philosophy, history, current practice, and issues. For administrators, teachers and students in curriculum and early childhood education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5183 Media Literacy Across the Curriculum
Description: Examination of the history of media literacy. Major topics and issues in the field of media literacy and curriculum in media literacy across subject areas.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5203 Foundations of Literacy Education 1-8
Description: Major literacy theories, content, and pedagogy with a required 45-hour field experience. For graduate students seeking initial certification in elementary education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5213 Introduction to Teaching and Learning
Prerequisites: Admission to the MAT program.
Description: Overview of teaching and learning in the 21st Century. Requires field experience in PK-12 Classrooms.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

CIED 5303 Teaching and Learning Foreign Languages in the Elementary Schools (Grades 1-8)
Description: Purpose, selection and organization of foreign language curriculum content, teaching and learning theories, and procedure and evaluation of outcome for diverse students. Teaching techniques and materials for grades 1-8. May not be used for degree credit with CIED 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5310 Field Experience in the Elementary School
Description: Directed observation and participation in classrooms, First through grade eight. Concurrent seminar exploring multicultural education and integrated programs. Offered for variable credit, 1-2 credit hours, maximum of 3 credit hours. Corequisite(s): CIED 4362; full admission to Professional Education.
Credit hours: 1-2
Contact hours: Lab: 3-6 Contact: 3-6
Levels: Graduate, Undergraduate
Schedule types: Lab
Department/School: Teaching, Learning, Ed Science

CIED 5313 Curriculum of the Elementary School
Description: Contemporary trends, philosophies and points of view in elementary school education. Previously offered as CIED 6113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5323 Teaching Social Studies in the Schools
Description: Curriculum, materials, methods, and procedures related to social studies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5333 Effective Classroom Management for Secondary Schools
Prerequisites: Admission into the Secondary Teaching Graduate Certificate Program or permission of instructor.
Description: Examines classroom management, classroom discipline, and education issues of immediate concern (culturally responsive pedagogy, social justice, anti-bias applications, and using diverse technologies in the secondary classroom) for novice teachers. Course is required in the Graduate Certificate for Effective Teaching in Secondary Schools program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science
Additional Fees: EHS Outreach Tuition and fee of $299 per credit hour applies.

CIED 5343 Introduction to K-12 English Language Learners
Description: Pedagogical strategies and instructional theories related to English Language Learners and culturally diverse students.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science
Additional Fees: EHS Outreach Tuition and fee of $299 per credit hour applies.

CIED 5350 The Visual Arts in the Curriculum
Description: Creative approaches to the use of two- and three-dimensional media as they relate to various aspects of education. Opportunities available for periodic group and individual evaluation in order to give direction and significance to future growth. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 5353 Literature for Children, Adolescents and Adults
Description: Exploration of the elements and characteristics of quality literature for readers of all ages, addressing evaluation, selection, and utilization. Research component requiring learners to design and conduct relevant research into literature learning and engagement with selected populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5363 Effective Teaching Strategies for the 6-12 Classroom
Prerequisites: Admission into the Secondary Teaching Graduate Certificate Program or permission of instructor.
Description: Includes a study of effective instructional practices and assessment in the 6-12 classroom. Topics will include but not be limited to: research-based models of instruction, teacher questioning, facilitating classroom discussions, lesson planning, assessment, differentiated instruction, culturally responsive pedagogy, and teaching culturally and linguistically diverse learners. Course is required as part of the graduate certificate program for Effective Teaching in the Secondary Schools.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5373 Design and Management of the Elementary School Classroom
Description: Introduction to the design and management of the physical, social, and intellectual aspects of the elementary classroom. Overview of the purposes, selection and organization or applicable classroom management systems and teaching approaches. May not be used for degree credit with CIED 4362. Previously offered as CIED 5362.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science
Additional Fees: EHS Outreach Tuition and fee of $299 per credit hour applies.

CIED 5403 Teaching and Learning in the Secondary Schools: English Language Arts Methods
Prerequisites: Admission into the Secondary Teaching Graduate Certificate Program or permission of instructor.
Description: Examines current trends and issues in Secondary English Language Arts. The major focus is to provide an overview of instructional strategies, assessment techniques, and curriculum development. Course is required in the Graduate Certificate for Effective Teaching in Secondary Schools program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5413 Teaching and Learning in the Secondary Schools: Social Studies Methods
Prerequisites: Admission into the Secondary Teaching Graduate Certificate Program or permission of instructor.
Description: Examines current trends and issues in Secondary Social Studies Education. The major focus is to provide an overview of instructional strategies, assessment techniques, and curriculum development. Course is required in the Graduate Certificate for Effective Teaching in Secondary Schools program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5423 Literacy Instruction in Primary Grades
Description: Analysis of growth in literacy from the preschool level through early elementary years. Examination of literacy learning processes and instructional procedures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5433 Reading and Writing in the Content Areas
Description: Study of the development and use of reading and writing across the content areas.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5443 Teaching Reading with Literature
Description: Teaching reading comprehension strategies through the use of children's literature. Designed to prepare library media specialists and other literacy educators to explicitly teach comprehension strategies to PK-12 students.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5450 Internship in Elementary Education
Prerequisites: Full admission to professional education; successfully pass the subject area OSAT; successful completion of all other course work.
Description: Clinical internship for teacher candidates in schools. Concurrent seminar on educational policy, legal, and curriculum development issues. Offered for variable credit, 3-6 credit hours, maximum of 9 credit hours.
Credit hours: 3-6
Contact hours: Lab: 6-12 Contact: 6-12
Levels: Graduate
Schedule types: Lab
Department/School: Teaching, Learning, Ed Science

CIED 5453 Infusing Aesthetics Across the Curriculum
Description: Teachers enliven curriculum by cultivating students' aesthetic sensibilities across all disciplines. Historically, the field of Aesthetics has been concerned with notions of beauty, ugliness, contemplation, criticism, and elegance among others. Within Curriculum Studies, developing aesthetic awareness also involves engaging all of the senses in the teaching and learning process, approaching curriculum as embodied and holistic, stimulating imagination, and fostering enthusiasm for learning. Historical development of the field of aesthetics and its impact.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5463 Practicum I: Literacy Assessment and Instruction
Prerequisites: CIED 5423 and CIED 5143 or consent of instructor.
Description: Development of knowledge of reading, writing, and language assessment and instruction for K-12 students. 11 hours of supervised field experience for authentic literacy assessment, evaluation, and tutoring, plus 10-15 hours of targeted lesson planning outside of class meetings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5473 Reading & Writing Difficulties
Description: Study of research and formal assessment tools related to reading and writing difficulties in children and adults.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5483 Literacy and Technology Across the Curriculum
Description: The characteristics of computer-facilitated learning relating to broad definitions of literacy. Use of a variety of computer and literacy tools across the curriculum.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5493 Multisensory Phonics Instruction
Description: This course provides in-depth content specifically focused on evidence-based instruction in phonemic awareness, systematic and explicit phonics, and spelling. The course supports teachers and reading specialists who work with students with dyslexia.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5513 Young Adult Literature
Description: Survey of print and non-print materials, including multicultural and multi-ethnic materials for young adults from middle school through high school. History, criticism, selection, and evaluation of young adult literature and exploration of its relation to the needs and interests of young people. May not be used for degree credit with CIED 4313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5523 Practicum II: Advanced Literacy Interventions
Prerequisites: CIED 5463 or consent of instructor.
Description: Assessment, evaluation, and targeted instruction in reading and writing for K-12 students who experience difficulty learning literacy processes. Collaboration among teachers, literacy coaches, and resource personnel. Includes 11 hours of supervised practicum focused on small group intervention instruction. Previously offered as CIED 5520.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5533 Writing as Peace Process: Healing Practices, Genre Awareness, and Educational Renewal
Description: Preparation of teachers as reflective writers and leaders in educational practice. Skills in wellness writing, genre analysis, and advocacy for peacebuilding.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5553 Literacy Leadership and Coaching
Prerequisites: CIED 5463.
Description: Develops skills and knowledge for school literacy program design and leadership, and for coaching other teaching professionals in literacy teaching.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5563 Learning and Living the Wisdom of Peace
Description: This course examines the causes of unrest and conflict rooted in conditioned patterns of the mind and guides students in recognizing these patterns in themselves and others. It offers pathways towards inner peace that are grounded in meditative integration and personal transformation, cultivating spacious awareness, nonviolence, and the capacity to live in harmony with oneself and the world.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5573 Using Assessment to Understand Early Readers in Reading Recovery
Description: Focus on the administration and interpretation of Marie Clay's An Observation Survey of Early Literacy Achievement and intervention procedures that will support the beginning reader for whom reading and writing does not come easily. Graduate students will teach four children while learning Reading Recovery procedures. In addition, graduate students will observe children and teachers interacting behind a one-way glass.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5583 Responsive [Reading Recovery] Teaching to Accelerate Early Reading Progress
Description: Focus on the refinement of the Reading Recovery procedures used with beginning readers for whom learning to read and write does not come easily. Attention will be directed to teacher decision-making while working with four children. All enrolled in the course will be involved in teaching and observing children behind a one-way glass.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5623 Multicultural and Diversity Issues in Curriculum
Description: Understanding of the historical and contemporary perspectives toward cultural diversity. Development of an awareness of diverse culture and language communities; understanding of critical issues of race, class, gender, and ethnicity in education; perennial issues of multiculturalism in public education and in global society; a comprehensive overview of principles and current research on bilingual and multicultural education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5640 Special Topics in Literacy Education
Description: Topics vary to address special topics in literacy education. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5643 Integrating Teaching at the Elementary Level
Description: Study and analysis of theories related to children's learning and implications for integrating teaching at the elementary level. Examination of teachers, own practices through reflection and research, study diverse populations, share teaching approaches and materials across the curriculum, and explore outreach to school, family and community.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5663 Integrating Teaching in the Secondary School
Description: In-service for middle to secondary teachers especially with professional development in their own school settings and in further graduate work. Examination of own practices through reflection and research, study of diverse adolescents, sharing of teaching approaches and materials across the curriculum, and exploration of outreach to school, family and community. Teacher leadership. Previously offered as CIED 5664.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5710 Internship in Secondary School
Prerequisites: Full admission to professional education; successfully pass the subject area OSAT; successful completion of all other course work.
Description: Advanced clinical experience for teacher candidates (student teacher) in secondary schools. Offered for variable credit, 3-6 credit hours, maximum of 9 credit hours.
Credit hours: 3-6
Contact hours: Lab: 6-12 Contact: 6-12
Levels: Graduate
Schedule types: Lab
Department/School: Teaching, Learning, Ed Science

CIED 5713 Teaching and Learning in the Secondary School
Prerequisites: Full admission to Professional Education.
Description: Purposes, selection and organization of curriculum content, teaching and learning theories and procedures, and evaluation of outcomes for diverse students. Teaching techniques and materials for art, English, foreign languages, science, and the social studies. This course MUST be taken the semester prior to student teaching/internship. May not be used for degree credit with CIED 4713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5720 Education Workshop
Description: For teachers, principals, superintendents and supervisors who need advanced curriculum and instruction course work related to K-12 subject areas and pedagogy, in the areas of instruction and administration. Students must register for the full number of credit hours for which the workshop is scheduled for a particular term. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 5723 Gender and Curriculum
Description: An overview of gender issues in curriculum theory and practice. Understanding of historical and contemporary perspectives on gender in the context of schooling, pedagogy, and education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5724 Classroom Management in the Multicultural PK-12/Secondary School
Prerequisites: Full admission to Professional Education.
Description: An overview of classroom management and discipline approaches, parental involvement, school climate, and community relations. Includes field experiences in a diverse secondary classroom. Course previously offered as CIED 4723. May not be used for degree credit with CIED 4724.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

CIED 5730 Seminar in Education
Description: Seminar topics may differ depending upon the nature of current interests and topics in American education. May not be used for degree credit with SMED 4560. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 5733 History of Reading
Prerequisites: Graduate standing with the Graduate College.
Description: This course provides an examination of the historical landscape of reading education paradigms, research, theory development, instruction, and policy in the U.S. Key research pioneers in reading/literacy education and their work, from a variety of "camps" (e.g. psychological or information processing, phonics, behaviorist, constructivist, reading and writing process, socio-cultural, etc.), will also be examined.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5810 Internship Art and Foreign Language in PK-12 School
Prerequisites: Full admission to professional education; successfully pass the subject area OSAT; successful completion of all other course work.
Description: Advanced clinical experience for art or foreign language teacher candidates (student teacher) in PK-12 schools. Offered for variable credit, 3-6 credit hours, maximum of 9 credit hours.
Credit hours: 3-6
Contact hours: Lab: 6-12 Contact: 6-12
Levels: Graduate
Schedule types: Lab
Department/School: Teaching, Learning, Ed Science

CIED 5813 Educational Advocacy and Leadership
Description: Preparation of teachers as advocates and leaders in educational policy and practice at various levels. Skills in action research, policy analysis, and coalition building leading to advocacy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5823 Mindfulness, Curriculum, and Teaching
Description: The concept of mindfulness and its meanings for education. Theory and practice of mindful curriculum and teaching.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5843 First and Second Language Acquisition for Teachers
Description: The overall focus of this course is on introduction to theory, research, and practice in the fields of first and second language acquisition; understanding of language acquisition at various developmental levels, both within and outside of the classroom; and application of language acquisition theories to instructional practice. May not be used for degree credit with CIED 4813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5850 Directed Study
Prerequisites: Consent of instructor.
Description: Directed study for master's level students. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 5853 Teaching Writing GR 1-8
Prerequisites: Admission into MAT program.
Description: Learning theory, content, and methods related to teaching spoken, written, and visual forms of communication. Focus on listening, speaking, writing and on teaching knowledge, skills and strategies inherent in those processes. Stresses integration of central literacy components and across the curriculum, teaching diverse learners and perspectives, inquiry, and critical literacy. Meets with CIED 3253. No degree credit for those with credit in CIED 3253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5863 Foreign Language Instruction, Curriculum and Assessment: Grades Pk-12
Description: History of foreign language education and teaching; understanding the role of foreign language in PK-12 programs; application of national and state foreign language learning standards in instructional planning; application of approaches, methods, strategies, and techniques of foreign language teaching; utilization of assessment tools to obtain information about foreign language learners' learning; and selection, evaluation, development, and modification of foreign language curricula. May not be used for degree credit with CIED 4863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5873 Place as Curriculum Wisdom
Description: Place is vital to our existence—so much so we might call ourselves placelings. Yet place is all too often overlooked in curriculum and teaching. This course explores place as curriculum wisdom through experiential, personal, social, and reflective inquiries. Students will engage with the multidimensional nature of place and cultivate attentiveness, reflection, and ethical engagement as foundations for educational experience and practice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5893 Reading Processes and Practices GR 1-8
Prerequisites: Graduate Standing and consent of Instructor.
Description: Learning theory, content, and methods specifically related to teaching children to read a wide range of texts. Understandings of central reading components such as print awareness, phonological/phonemic awareness, phonics, fluency, vocabulary, comprehension, and critical literacy. Best practices for teaching reading effectively for diverse learners with varied needs and interests. Includes program phonics exam. Meets with CIED 3293. No degree credit for those with credit in CIED 3293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science
Additional Fees: EHS Outreach Tuition and fee of $299 per credit hour applies.

CIED 5963 Teaching Grammar in the Secondary Schools
Prerequisites: Graduate status or instructor permission.
Description: Students learn to teach language inductively to build thinking, language and writing skills. Meets with CIED 4093. No degree credit for those with credit in CIED 4093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5973 Formative Literacy Assessment GR 1-8
Prerequisites: CIED 5893 and CIED 5853; or consent of instructor.
Description: Selection, administration, and interpretation of a variety of formal and informal literacy assessments. Use of assessment results to plan, evaluate, and revise effective instruction for diverse learners within an assessment/evaluation/instruction cycle. Tutoring practicum required. Meets with CIED 4233. No degree credit for those with credit in CIED 4233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 5993 Teaching Writing in the Secondary Schools
Prerequisites: Graduate status or instructor permission.
Description: Students learn to teach writing inductively by building the reasoning skills that lead to cogent, cohesive, audience-appropriate writing. Focus is on increasing the underlying skills necessary for writing description through argumentation. Meets with CIED 4193. No degree credit for those with credit in CIED 4193 or CIED 4194.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6000 Doctoral Dissertation
Description: Required of all candidates for the Doctor of Philosophy degree. Credit is given upon completion of the dissertation. Offered for variable credit, 1-12 credit hours, maximum of 25 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 6030 Contemporary Issues in Curriculum Studies
Description: Examination of selected contemporary topics in curriculum studies. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 6033 Analysis of Teaching
Description: Advanced study of multiple forms of analysis of teaching such as behavioral, phenomenological, and constructivist with emphasis on major research on teacher reflection and teacher narrative.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6040 Special Topics in College Curriculum and Teaching
Description: Topics vary to address issues related to college curriculum and teaching at various levels of higher education. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6043 Curriculum Leadership
Description: A study of curriculum leadership and implications for schooling; focus on what it means to be a curriculum leader in times of major societal change and educational reform.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6053 Advanced Curriculum Studies
Description: In-depth examination of key concepts, topics, trends, and the interdisciplinary nature of curriculum studies. Critical analysis of contemporary curriculum discourses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6060 Advanced Special Topics in Literacy Education
Description: Topics vary to address special topics in literacy education at the doctoral level. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 6063 Curriculum History
Description: Examines in-depth the history of various movements in U.S. curriculum thinking and the individuals who promoted them, with attention to the cultural and institutional contexts within which they worked. Emphasis is given to primary sources and the position of curriculum thinking within evolving educational thinking.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6070 Seminar in Arts and Humanities Education
Prerequisites: Graduate standing or instructor permission is required.
Description: Topics, research trends, theories, themes, and/or problems of interest and use in research, theorizing, publishing, and teaching. Particular focus on the skill of writing a theoretical lens and analyzing texts through that lens. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6073 Advanced Pedagogical Research
Description: Advanced theory and application of pedagogical research with emphasis on teacher as researcher, teacher research as professional development and education reform, techniques of pedagogical research and pedagogical question posing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6090 Readings in Arts and Humanities Education
Prerequisites: Graduate standing or instructor permission is required.
Description: In-depth readings specific to research and theorizing in arts and humanities education. Focusing on analysis, students examine primary texts and related secondary texts. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6133 Theory to Practice in Education
Description: A culminating seminar demonstrating the application of theory from several disciplines to the practical problems of education: curriculum development, organization, teaching strategies and evaluations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6143 School Reform
Description: Current issues in school reform with an emphasis on U.S. education; focus on what it means to engage in reform from dual points of view: curriculum leader and recipient of reform mandate.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6153 Curriculum of Nonviolence
Description: The concept of nonviolence and its implications for curriculum and education. Curriculum dynamics of nonviolence. Curriculum theory and practice for, about, and through nonviolence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6163 Advanced Research Strategies in Curriculum
Prerequisites: SCFD 6113.
Description: Exploration of designs and methods within qualitative and quantitative research as applied to the field of curriculum. Articulation on how to ensure that both qualitative and quantitative studies meet their respective standards of rigor. Previously offered as CIED 5063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6173 International Peace Curriculum Development
Description: Conceptual foundations of peace education; theory and practice of developing school and college curriculum about and for international peace; case studies of international conflict resolution and peace curriculum.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6183 Advanced Media Literacy Across the Curriculum
Description: This course examines the interdisciplinary area of media literacy across the curriculum. Major themes such as issues of hegemony and strategies of media literacy in diverse classrooms will be explored. Students will analyze and evaluate various curriculum theories as applied to media literacy as well as research in the field. Finally, the future of media literacy and debates in the field will be considered.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6253 Designing and Conducting Mixed Methods Research
Prerequisites: REMS 5953 (or equivalent) and SCFD 5913 (or equivalent); admittance to a doctoral level program.
Description: Participants will examine the history, philosophical foundations, and methodological issues of mixed methods research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6283 Innovation & Change: Implementation Science
Description: Implementation science is the study of factors that influence the successful use of effective innovations in practice to improve outcomes. This course provides theoretical foundations, practical tools and authentic learning opportunities to build the knowledge and skills needed to implement innovations in real-world settings. The focus of the course is on building capacity. Students will learn implementation science theories, models, and frameworks as well as methods and tools to understand the determinants that facilitate or impede implementation at all levels of the implementation process.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6383 Coaching Models to Encourage Change
Description: This course is designed to explore the role of coaching in promoting innovation and change within a school or other organizations. While “coaching” in schools is often seen as synonymous with “instructional coaching” this course will take a broader view. In this class we will examine the role of coaching, how to set up and manage a coaching culture, and how to evaluate the success of coaching programs. Additionally, this class will explore multiple coaching models, conversational frameworks, and discuss the practical skills needed to be an effective coach.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6433 Seminar in Literacy
Description: Research of issues in literacy education using knowledge gained through both research and classroom practice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6483 Innovation & Change: Practitioner Action Inquiry
Prerequisites: SCFD 5913 recommended
Description: This course focuses on theory, design, and application of practitioner action inquiry. Emphasis is placed on practitioner as researcher, practitioner question-posing, and techniques of practitioner research utilized under the umbrella of practitioner action inquiry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6503 Doctoral Seminar
Description: In-depth investigation into the doctoral experience and the professoriate including research and writing for the dissertation and for publication; grant writing; professionalism and ethics; professional service; and teaching in higher education. Primarily for students in the PhD program in Curriculum Studies and Professional Education Studies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6583 Innovation & Change: Data-Driven Decisions
Description: This course is designed to prepare practitioner scholars in education and human sciences to use quantitative data for innovation and change in their professional contexts. Emphasis is on the practical application of existing tools to gather (e.g., Qualtrics, Survey Monkey, academic measures), maintain (e.g., Excel), analyze and share data to make informed decisions for change in their work settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6850 Directed Reading
Prerequisites: Consent of instructor.
Description: Directed reading for students with advanced graduate standing to enhance students' understanding in areas where they wish additional knowledge. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 6853 Improvement of Instruction in Reading
Description: Problems and issues related to reading instruction. The roles of various school personnel in changing curriculum and methods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

CIED 6880 Internship in Education
Prerequisites: Consent of instructor.
Description: Directed off-campus experiences designed to relate ideas and concepts to problems encountered in the management of the school program. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

CIED 6910 Practicum
Prerequisites: Consent of adviser.
Description: Helps the student carry out an acceptable research problem (practicum) in his/her local school situation. Credit given upon completion of the written report. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

Dance (DANC)

DANC 1003 Introduction to Dance Studies (H)
Description: Explore dance as an art form and academic discipline within a global context. No prior dance experience necessary.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre
General Education and other Course Attributes: Human Heritage & Cultures

DANC 1200 Dance Ensemble Practicum
Description: Directed study and practice of dance in performance as a soloist or ensemble member. Offered for variable credit, 1-2 credit hours, maximum of 6 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Theatre

DANC 2002 Ballet I
Description: Fundamentals of ballet vocabulary, technique, and aesthetics taught through exercises at the barre, center work, and movement combinations. Suitable for the beginning through advanced student.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 2102 Contemporary Modern Dance I
Description: Class provides an introduction to the use of gravity, spatial awareness, rhythm, and energy through study of global influences which construct contemporary dance - through floor work, center, and traveling combinations. Suitable for the beginning through advanced student.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 2202 Jazz Dance
Description: Jazz dance techniques for theatrical performance emphasizing body alignment, coordination, flexibility, rhythm and jazz dance vocabulary in simple dance combinations. Suitable for the beginning through advanced student. Previously offered as TH 2412.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 2302 Tap I
Description: Fundamentals of tap dance techniques for theatrical performance emphasizing coordination, rhythm, and dance vocabulary in simple tap combinations. Suitable for the beginning through intermediate student. Previously offered as TH 2432.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 2402 Hip Hop Dance and Cultures
Description: This class provides an introduction to hip hop dance techniques and histories. Grounded in appropriate historical and cultural contexts, students will experience various styles under the Hip Hop "umbrella", and develop an understanding of the socio-cultural forces which shape the form.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 2563 American Social Dance and Visual Culture
Description: This introductory course offers a beginning-level survey of the cultural history of social dance in North America from the eighteenth century to the present. It combines study of the history, theory, and visual/material culture of social dance with physical practice of specific dance forms. Because few comprehensive written sources exist for social dance, visual art, including film, animation, paintings, sculpture, photography, and illustration, is a vital tool for understanding historic dance and its role in American society. Over the course of the semester, we will examine the visual culture of social dance in order to gain insight into its historical functions as a tool for social cohesion, intercultural exchange, protest/activism, and identity formation, among other things. Through the practice of these dance forms, we will add an experiential component to our analysis of the roles that social dance has played in American culture over time. Same course as ART 2563.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Discussion
Department/School: Theatre

DANC 2602 Dance Composition
Prerequisites: DANC 2002 and DANC 2102 or permission of instructor.
Description: An investigation of the elements of dance composition and improvisation in order to experience new kinds of movement, make connections among varied movement ideas, and seek new relationships to create dances. A primer for choreographic studies.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 2603 Context and Cultures: Mapping the Dancing Body (H)
Description: This course orients students to the field of dance as an art form and academic discipline that exists beyond simple entertainment. Through readings, video viewing, discussions, writing, and creative assignments students will attune to "reading" the body as a space of intelligence, a creator and product of culture, and entwined within its socio-political contexts. Students will apply critical lenses of gender, race/ethnicity, economics, sexuality, and colonial/post-colonial/neo-colonialism to analyze systems of power. Coursework is curated to encourage curiosity, critical engagement, and a layered understanding of the rich lineages of dance. Students will demonstrate their understanding through written, spoken, and movement-based work.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Discussion
Department/School: Theatre
General Education and other Course Attributes: Human Heritage & Cultures

DANC 3002 Ballet II
Prerequisites: DANC 2002 or permission of instructor.
Description: Building upon Ballet I, this course emphasizes technical and artistic skills in style and presentation, and the use of increasingly complex combinations and technical vocabulary.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 3102 Contemporary Modern Dance II
Prerequisites: DANC 2102 or permission of instructor.
Description: Building on DANC 2102, class provides a continued investigation in to the use of gravity, spatial awareness, rhythm, and energy through study of global influences which construct contemporary dance - through floor work, center, and traveling combinations. Suitable for intermediate through advanced students.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 3302 Tap II
Prerequisites: DANC 2302 or permission of instructor.
Description: This class builds on the skills developed in Tap I, with a focus on complex rhythmic patterns, advanced tap steps, and Broadway choreography. Recommended for the Intermediate to advanced student.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 3400 Teaching Assistant Practicum
Prerequisites: Permission of instructor.
Description: Directed study and practice of dance teaching. This course provides the opportunity for students to learn about the process of teaching through active observation and assisting the instructor during a dance course. Offered for variable credit, 1-2 credit hours, maximum of 3 credit hours.
Credit hours: 1-2
Contact hours: Lecture: 1-2 Lab: 2-4 Contact: 3-6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 3502 Musical Theatre Dance
Prerequisites: Ballet 1 or consent of instructor.
Description: Course focuses on training performers in the various dance styles used in Broadway and Off-Broadway musicals, and demonstrates the dance skills through performance of choreography by well-known choreographers.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 3530 Special Topics in Dance
Prerequisites: Instructor approval.
Description: This course offers specialized topics in dance techniques and dance histories. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Lab: 1-4 Contact: 2-7
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

DANC 3603 Choreography
Prerequisites: DANC 2602 or permission of instructor.
Description: Building upon DANC 2602 Dance Composition, this course is an investigation of dance composition and the choreographic process. Students will learn and execute the fundamentals of dance choreography.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

DANC 3703 Competition Dance - Through an Ethnographic Lens
Description: This upper-level course provides students the opportunity to learn, broadly, about dance as an expression of culture and, specifically, about the phenomenon of commercial competition dance in the United States. Through readings, lectures, discussion, and active fieldwork, students will learn about and utilize Ethnography as a framework for research; apply critical lenses to analysis of research, and plan, administer, and report on active field research. From week to week, students will observe and analyze filmed competition dance classes, rehearsals, and performances through critical research lenses of economics, pedagogy, race/ethnicity, gender, and performance of sexuality. Students will also consider factors of child development as they relate to these lenses. Final work will be submitted as a written report and a verbal presentation developed in collaboration with a small group of peers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

Design & Merchandising (DM)

DM 1003 Design Theory and Processes for Design and Merchandising
Prerequisites: DM/DHM majors and declared DM/DHM minors only.
Description: Design elements, principles and processes applied to design and merchandising. Previously offered as DHM 1003.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 1103 Basic Apparel Assembly
Prerequisites: DHM or DM major only or declared DHM or DM minor or HDFS (Family and Consumer Sciences Education option) major.
Description: Basic apparel assembly techniques. Problems including basic fit, spreading and cutting methods and equipment, and use and application of sewing equipment, including lock, chain, and overedge. Previously offered as CTM 1103 and DHM 1103.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 1123 Graphics for Interior Design I
Prerequisites: DHM or ADT or FM or ID major.
Description: Drafting and visual communication techniques related to interiors. Previously offered as DHM 1123.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 1433 Fundamentals of the Fashion Industry
Description: An overview of variables affecting production and distribution of consumer goods; development of present structure in consumer products industries. Course previously offered as CTM 2433 and DHM 2433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 1993 Communications and Presentation Techniques for Apparel Design
Prerequisites: DM 1003 with a minimum grade of C.
Description: Creative communication methods and techniques, including a variety of media for two- and three-dimensional presentations in apparel design. Previously offered as DHM 1993 and DHM 2993.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 2003 Problem Solving Strategies
Description: Participatory problem solving in design and merchandising; critique of proposed solutions as a positive process of evaluation. Previously offered as DHM 2003
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 2033 VR and AR for Social Change
Description: Focus on using and applying Virtual Reality (VR) and Augmented Reality (AR) technology through a multidisciplinary approach to solving current societal problems by applying social science practices with innovative technology. How to develop 3D content, and apply these components effectively in VR/AR, form teams, and develop VR projects proposed by current events and conditions of the world. Turn your creative ideas into useful applications. This is a beginner-level course and is open to all students. No prior coding or design experience is required.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 2073 Computer-Aided Design for Interior Design
Prerequisites: Permission of Instructor and Pass Proficiency Review and minimum grade of C in both DM 1123 and DM 2233.
Description: Computer-aided design and drafting for two-dimensional and three-dimensional interior systems. Previously offered as DHM 2073, DHM 3373 and HIDC 3373.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 2103 Interior Design Studio I: Residential
Prerequisites: Permission of Instructor and Pass Proficiency Review and a minimum grade of C in DM 1123 and DM 2233 and MATH 1483 or MATH 1513 or MATH 1583 or MATH 1613 and ENGL 1113.
Description: Studio course utilizing the design process in the analysis and planning of residential environments using computer-aided and hand drafting techniques. Previously offered as DHM 2103, DHM 3263 and HIDC 3263.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 2204 Intermediate Apparel Assembly
Prerequisites: DM 1103 with minimum grade of "C".
Description: Development of skill in apparel assembly. Intermediate problems in fit, spreading, cutting, and sequencing of apparel assembly operations for lined garments, plaids, other special fabrics and closures. Course previously offered as DHM 2203, DHM 2204 and CTM 2203.
Credit hours: 4
Contact hours: Lecture: 1 Lab: 6 Contact: 7
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 2233 Graphics for Interior Design II
Prerequisites: DM 1123 with minimum grade of "C".
Description: Applied creative solutions to visual communication formats and media; free-hand sketching, informational graphics, rendering techniques for product and material illustrations, floor plans, elevations and 3-D room interiors/architectural detailing. Previously offered as DHM 2233.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 2243 Sustainability in the Fashion Industry
Prerequisites: DM 1433 with minimum grade of "C"
Description: The study of business strategies for a more sustainable fashion industry. Students will explore concepts and principles of sustainable fashion, examining sustainable sourcing, production methods, and the role of technology in advancing industry-wide sustainability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 2263 Interior Design Studio II: Small Scale Contract
Prerequisites: DM 2073 and DM 2103 with minimum grade of "C".
Description: Analysis and planning of small office, hospitality and retail environments with emphasis on materials, lighting, codes and accessibility using computer-aided 2D drafting and 3D modeling techniques. Previously offered as DHM 2263, DHM 3363 and HIDC 3363.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 2302 Supervised Field Experience
Prerequisites: DM 2103 with minimum grade of "C".
Description: Field experience in specialized residential, commercial and institutional design with both historic and contemporary elements. Previously offered as DHM 2302.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 2403 Research Methods
Prerequisites: MATH 1483 or MATH 1513, with minimum grade of "C".
Description: Qualitative and quantitative data collection methodologies for the fields of Apparel, Interior Design and Merchandising. Basic understanding of data analysis and use of data to guide managerial decision making. Previously offered as DHM 2403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 2423 Technology and Visual Communication for Merchandisers
Prerequisites: Fashion Merchandising majors and minors only. DM 1003 and DM 1433, both with a minimum grade of "C".
Description: The development of visual communication skills for marketing, promotional, and merchandising applications as well as personal branding utilizing industry-relevant technological practice. Previously offered as DHM 2423.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 2444 Draping
Prerequisites: DM 2204 with "C" or higher and pass proficiency review.
Description: Interpretation of garment design developed through the medium of draping on dress forms. Previously offered as DHM 2443, DHM 2444, DHM 4243, and CTM 4243.
Credit hours: 4
Contact hours: Lecture: 1 Lab: 6 Contact: 7
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 2573 Textile Science (LN)
Description: Science principles as the basis for understanding fibers, the basic structure of yarns and fabrics. Relationships between the chemical composition of fibers and properties such as tensile strength, flammability, elasticity, moisture absorption, and dye affinity. Understanding science principles in relation to textile properties for evaluation of textile products. Recommended for education majors seeking knowledge to be used for innovative teaching of science principles in grades K-12. Required for all DHM majors. Previously offered as CTM 2573 AND DHM 2573.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

DM 2913 Sewn Product Quality Analysis
Prerequisites: DM 1433 and DM 2573, both with minimum grade of "C".
Description: Sewn product manufacturing process with emphasis on evaluating product quality and its relationship to performance. Examined from the retailers', manufacturers', and consumers' perspectives. Course previously offered as DHM 2013 and DHM 2913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3014 Flat Pattern Design
Prerequisites: DM 2444 with minimum grade of “C” and pass proficiency review.
Description: Interpretation of dress design developed through the medium of flat pattern; introduction to pattern drafting. Course previously offered as CTM 3013 and DHM 3014.
Credit hours: 4
Contact hours: Lab: 8 Contact: 8
Levels: Undergraduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 3023 Computer-Aided Flat Pattern Design
Prerequisites: DM 3014 with minimum grade of "C" and pass proficiency review.
Description: Advanced apparel design problems using flat pattern and computer-aided design (CAD) techniques. Previously offered as DHM 3023.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 3033 Material Culture
Prerequisites: DM 3303 or DM 3213 with a minimum grade of "C" or permission of instructor.
Description: An exploration of a variety of theoretical approaches toward understanding what objects mean. Psychological, sociological, economic, and other approaches are examined using culture theory models. Previously offered as DHM 3033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3043 Digital Product Creation
Prerequisites: DM 3023 with a final grade of "C" or higher
Description: Advance your 2D design skills with 3D digital creation. Understand the importance of the 3D software as it pertains to the apparel industry. Introduction to 3D software programs (BZW, CLO).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3053 Quality Analysis for Apparel Design
Prerequisites: DM/DHM or ADT or FM majors only, and DM 1433, DM 2204, and DM 2573, all with a minimum grade of "C".
Description: Evaluation of product quality relating to target market, materials, and construction. Previously offered as DHM 3053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3103 Anthropometry and Ergonomics in Design
Prerequisites: DM 2403 with minimum grade of "C".
Description: Methods and principles for representing body size, fit, accommodation, proxemics, ease and product specific functionality to apparel, merchandising and built environment design. Previously offered as DHM 3103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3123 Advanced Technology for Apparel Design
Prerequisites: DHM or DM majors only and DM 1993 and DM 3023, both with a minimum grade of "C".
Description: Building on CAD skills using software as applied to apparel design and production. Development of technical packages and specification materials. Previously offered as DHM 3123.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 3173 Digital Design Communication
Prerequisites: DM 2073 with a minimum grade of "C".
Description: Introduction of digital media tools for 2D and 3D design visualization and presentation. Underlying concepts and techniques of computer applications for design communication. Previously offered as DHM 3173.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 3213 Heritage of Dress (H)
Prerequisites: ENGL 1213 with minimum grade of "C" and 3 credit hours of history.
Description: Survey of historic modes of dress from the 18th to the 21st centuries, as that clothing reflects the environment and cultural life of a people, and change within the fashion industry. Previously offered as HIDC 3213 and CTM 3213 and DHM 3213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising
General Education and other Course Attributes: Human Heritage & Cultures

DM 3233 Heritage of Interior Design I (H)
Prerequisites: DM 2103, DM 2233 and ENGL 1213, all with a minimum grade of "C".
Description: Religious, civic, commercial, and domestic architecture and furnishings prior to and including the 18th Century with emphasis on the periods which have greatly influenced housing and interior design. Previously offered as HIDC 3233 and DHM 3233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising
General Education and other Course Attributes: Human Heritage & Cultures

DM 3263 Applications of Artificial Intelligence in Design
Description: This course explores the integration of Artificial Intelligence (AI) in design practices. Students will gain foundational knowledge in AI and its applications, engage with generative design, data-driven decision-making, and predictive analysis, and understand the ethical implications of AI. Through lectures, workshops, and projects, students will learn to leverage AI tools to enhance creativity, efficiency, and innovation in their work.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3303 Materials and Finishes for Interior Design
Prerequisites: DM 2263 with a minimum grade of C and DM 2573 with a minimum grade of C.
Description: An overview and examination of interior materials and finishes. Previously offered as DHM 2303, DHM 3303 and HIDC 3303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3343 Interior Design Studio III: Interior Components and Construction Documents
Prerequisites: DM 2263 with minimum grade of "C".
Description: Studio course exploring the design, materials, construction and production of interior design components for small scale commercial projects using computer-aided and hand drafted documents and renderings for visualization of design solutions. Previously offered as DHM 2243, DHM 3243, DHM 3343, and HIDC 3243.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 3433 Retail Strategies in the Digital Sector
Prerequisites: DHM or DM majors or declared DHM or DM Minors or by permission of instructor, DM 1433 and ECON 1113 or ECON 2103, all with a minimum grade of C.
Description: Study and application of retail merchandising in a virtual format. Emphasis on retail strategies and their impact on consumer experience in digital markets. Previously offered as DHM 3433.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 3443 Fashion Marketing Strategies
Prerequisites: DM 1433 with minimum grade of "C"
Description: The study of strategic approaches in fashion marketing, emphasizing effective promotion and positioning of fashion brands in a competitive marketplace. Students will learn how to develop and implement effective marketing strategies that drive consumer engagement and sales.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3453 Interior Design Studio IV: Environmental Design
Prerequisites: DM 3343 with minimum grade of "C".
Description: Exploration of the design factors and human performance criteria for lighting, acoustics, and thermal/atmospheric comfort and their applications in studio projects using computer-aided and hand drafted techniques. Previously offered as DHM 3253, DHM 3453 and HIDC 3253.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 3463 Fashion Consumer Behavior
Prerequisites: DM 1433 with minimum grade of "C"
Description: The study of psychological and social factors influencing consumer purchasing decisions in the fashion industry. Students will explore theories of consumer behavior and trends to understand how fashion brands can effectively engage their audiences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3533 Textile Surface Design
Prerequisites: DM 1003 and DM 2573 and DM 1993 or DM 2423, all with minimum grade of "C".
Description: Traditional and contemporary dyeing, printing, stitching, and other textile surface manipulation techniques are practiced in a portfolio of individual projects. Exercises in color theory and production inform textile design work. Aesthetic, methodological, and environmental tradeoffs are considered in relation to designing textile surfaces. Course previously offered as DHM 3533 and CTM 3533.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 3553 Profitable Merchandising Analysis
Prerequisites: MATH 1483 or MATH 2103 or MATH 1513, all with minimum grade of "C".
Description: Relationship analysis of profit and loss statement. Retail mathematical calculations necessary to plan and control merchandising results, open-to-buy, mark-up, mark-down, turn-over, stock-sales ratio. Initial development of a six-month buying plan. Previously offered as DHM 3553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3563 Fashion Buying and Planning
Prerequisites: Minimum grade of "C" in Math 1483 or Math 2103 or Math 1513.
Description: Exploration of the financial and strategic principles of fashion retail buying and planning. Topics include analyzing profit and loss statements, applying retail math, and managing assortment and inventory using Microsoft Excel, all within the fashion industry context. Previously offered as DHM 3563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3824 Professional Practices for Interior Design
Prerequisites: DM 2073, DM 2263 and DM 3343, all with a minimum grade of "C".
Description: Specific terminology, procedures, relationships and ethics pertaining to the organization and conduct of interior design practice globally. This course prepares students for obtaining a directed practical experience in a work setting related to interior design. Previously offered as DM 3823, DHM 3823 and HIDC 3823.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3853 Visual Merchandising
Prerequisites: "C" or better in DM 2423.
Description: Study and application of principles and practices in merchandise presentation for commercial purposes. Course previously offered as CTM 3853 and DHM 3853.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 3881 Interior Design Pre-Internship Seminar
Prerequisites: DHM or DM majors only. DM 2073 and DM 3343 and DM 3823 and EDHS 1112 or EDHS 3112, all with minimum grade of "C", Junior standing, and 2.5 major GPA.
Description: Preparation for obtaining and completing a directed practical experience in a work situation in the interior design field. Previously offered as DHM 3881.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3991 Pre-Internship Seminar
Prerequisites: ADT major: DM 3014, DM 3053. FMER major: DM 2423, DM 2913, concurrently enrolled in DM 3433. ADT and FMER majors only, or previously FDP and MERCH options with DHM or DM majors. 2.5 major GPA.
Description: Preparation for obtaining a directed practical experience in a work setting related to design or merchandising. Previously offered as CTM 3991 and DHM 3991.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 3993 Global Sourcing Strategies
Prerequisites: ECON 1113 or ECON 2103 or ECON 2203 with minimum grade of "C" and Junior standing.
Description: Broad multi-disciplinary study of the soft goods industries in the global economy. Previously offered as DHM 4993.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4010 Fashion Show Production
Description: Focus on fashion show production and promotion. Event management and public relation skills will be developed in the context of organizing a fashion show that highlights original student design work. Leadership and group interaction skills will be emphasized. Previously offered as DHM 4010. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4011 Post-Internship Seminar
Prerequisites: DM majors only, DM 3994.
Description: Study and comparison of student work experiences. Individual student conferences, review of merchant supervisor reactions. Previously offered as CTM 4011 and DHM 4011.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4023 Retail Analytics and Insights
Prerequisites: Grade of “C” or better in DM 3563
Description: Study of data-driven strategies in retail, focusing on the use of analytics to optimize decision-making. Topics include sales forecasting, customer behavior analysis, inventory management, and market trend identification. Students will learn to leverage data tools and techniques to generate actionable insights for improving retail performance and driving business growth. Previously offered as DHM 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4030 Domestic Faculty-Led Travel Course
Description: Selected areas of domestic faculty-led study in Design and Merchandising. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4033 Digital Product Creation II
Prerequisites: DM 3043, with final grade of "C" or higher.
Description: Continue to improve your knowledge and proficiency in 3D with advance skills with avatars, materials, pattern creation, styling and simulations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4040 International Studies in Design and Merchandising
Description: Selected areas of international study in Design and Merchandising. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Previously offered as DHM 4040.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4043 Advanced Digital Product Creation
Prerequisites: DM 4033, with a final grade of "C" or higher.
Description: Determine your path to 3D garment creation with advanced 3D design knowledge. Increase your skill set in 3D with advanced rendering, garment construction and animating Avatars.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4050 Biomimetic Industrial Practices
Prerequisites: Completion of DM 1101, Wicked Problems of Industrial Practice, is recommended prior to enrolling in this course.
Description: Exploration of sustainable solutions to challenges imposed by human beings through emulation of principles inherent in how nature works with an emphasis on applications in design. Completion of DM 1101, Wicked Problems of Industrial Practice, is recommended prior to enrolling in this course. May not be used for degree credit with DM 5050. Previously offered as DHM 4050 and DHM 4051. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4053 Capstone in DPC
Prerequisites: DM 4043, with a final grade of "C" or higher.
Description: Advance your skills and focus your individual path as an artist, designer and tech designer. As a technical designer it is important to have a grasp of the skills required. This course will expand on pattern and garment fit in relation to 3D and actual fit model. We will also expand on creating these garments in multi-sizes, garment construction, marker consumption and bill of materials.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4063 Sustainability in the Built Environment
Prerequisites: Senior standing
Description: This course utilizes a project-based learning approach to educate students about sustainability requirements in the built environment. Students will learn to connect concepts to practical application through the integrative design process. Students will be prepared to sit for the LEED exam after successfully completing this course. Previously offered as DHM 4021.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 4073 Advanced Textiles
Prerequisites: DM 2573
Description: An overview on protective textiles and clothing used by workers (e.g., firefighters, oilfield-workers) in high-risk sectors will be provided. Various factors affecting the performance of protective textiles and clothing will also be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4083 Technology in Apparel Retail and Consumer Experiences
Description: A study of technology in the field of retail and consumer behavior. Examination of concepts, frameworks, theories, issues, and academic research in content areas.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4153 Technical Design
Prerequisites: DHM or DM majors only and DM 3123 and DM 3053, both with a minimum grade of "C".
Description: Understanding and applying tech design for apparel related products. Technical design includes illustration, sketching, CAD pattern making, CAD marker making, material sourcing, production simulation, 3D avatars and fitting, along with costing. Previously offered as DHM 3153, DHM 4153 and CTM 3153.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 4163 Housing in Other Cultures
Description: Housing and interior design and expressions of cultural beliefs, attitudes, family patterns and environmental influences. Previously offered as DHM 4163 and HIDC 4163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4203 Functional Clothing Design
Prerequisites: DM 2573 and DM 3123, both with a minimum grade of "C".
Description: Problem solving approach to functional clothing design for specialized market segments (athletic, sportswear, clothing for the physically challenged) including performance evaluation of selected materials using standard methods of textile testing. Previously offered as CTM 3203 and DHM 3203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4264 Interior Design Studio V: Large Scale Commercial
Prerequisites: DM 3453 and DM 4373 and DM 4824, all with a minimum grade of "C".
Description: Analysis of large scale office planning and institution design including systems and specifications and emphasizing computer-aided design techniques for construction documents and presentations. Previously offered as DHM 4263, DHM 4264 and HIDC 4293.
Credit hours: 4
Contact hours: Lab: 8 Contact: 8
Levels: Undergraduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 4294 Interior Design Studio VI - Capstone
Prerequisites: DM 4264 with a minimum grade of "C".
Description: Studio course utilizing the design process in the analysis and planning of hospitality design and/or institutional design such as health care and education. Approaches include the consideration of the impact on facility management. Previously offered as DHM 4293, DHM 4294 and HIDC 4293.
Credit hours: 4
Contact hours: Lab: 8 Contact: 8
Levels: Undergraduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 4323 Heritage of Interior Design II (G)
Description: Exploration of the architecture, interiors and furnishings of a variety of structures. Residential, commercial, governmental, institutional, and recreational buildings of different cultures of the 19th and 20th centuries. Previously offered as HIDC 3333, HIDC 4323 and DHM 4323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising
General Education and other Course Attributes: International Dimension

DM 4373 Advanced Computer-Aided Design for Interior Design
Prerequisites: DM 2073, with a minimum grade of "C".
Description: Advanced computer-aided design and visualization for three-dimensional interior systems. Previously offered as DHM 4373.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 4403 Advanced Apparel Design
Prerequisites: DM 2444 and DM 3023, with a minimum grade of "C".
Description: Application of design and pattern-making principles and apparel assembly processes in the development of original designs. Course previously offered as CTM 4403 and DHM 4403.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 4433 Facility Management and Design
Description: Survey of nine competency areas of facility management and design, ensuring functionality of the built environment by integrating people, places, processes and technology. Previously offered as DHM 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4453 Fashion Entrepreneurship
Prerequisites: DM 3563 and DM 3993 with a minimum grade of "C".
Description: Study of the principles and practices of launching and managing a successful fashion business. This course covers the entire entrepreneurial process from ideation to business planning, including market research, brand development, financing strategies, product sourcing, and distribution. Students will explore challenges and opportunities in the fashion industry and develop the skills necessary to create, finance, and grow their own fashion enterprises. Previously offered as CTM 4453 and DHM 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4523 Critical Issues in Design and Merchandising
Prerequisites: Senior standing in DHM/DM major.
Description: Capstone course examining professional issues in design and merchandising in the context of central themes from general education. Course previously offered as CTM 4523 and DHM 4523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4533 Diversity and Inclusion in the Built Environment (D)
Description: In-depth study focused on diversity and inclusion needs of underrepresented groups in a variety of built environments including: offices, retail stores, hotels, restaurants, government, educational, housing and cultural institutions. This includes examining the lived experience of individuals of diverse ages, genders, physical and cognitive abilities framed within a lens of individual and civil rights. Previously offered as DHM 4533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising
General Education and other Course Attributes: Diversity

DM 4573 Sustainable Design for Apparel and Interiors
Prerequisites: CHEM 1014 or equivalent, and DM 2573, DM 3033 and Senior standing. Non DM majors: no prerequisite.
Description: A brief review of contemporary environmental, social and economic issues associated with industry practice; a broad exploration of sustainable design theories which may be applied in the apparel and interiors fields, from eco-efficiency to socially-driven changes. Previously offered as DHM 4573.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 4583 Sustainable Design Capstone
Prerequisites: DM 1101 with a minimum grade of "C" and Permission of Instructor.
Description: Work with community leaders and/or organizations to complete transdisciplinary service-learning projects that require the application of sustainable design concepts to solve local problems. Public dissemination of lessons learned. Previously offered as DHM 4583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 4810 Problems in Design and Merchandising
Prerequisites: Consent of instructor.
Description: Selected areas of study in design and merchandising. Previously offered as DHM 4810. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 4824 Professional Internship
Prerequisites: ADT major: DM 3023, DM 3123 and DM 3991. ID major: DM 3453, DM 3824 and DM 4373. FMER major: DM 3563, DM 3853 and DM 3991. ADT, ID and FMER majors only, or previously FDP, ID and MERCH options with DHM or DM majors. 2.5 major GPA and DM 3991 with minimum grade of C.
Description: A supervised internship experience that simulates the responsibilities and duties of a practicing professional in a work situation related to design in merchandising. Previously offered as DHM 4820 and DHM 4824.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 4850 Special Unit Course in Design and Merchandising
Description: In-depth study of specific areas of design and merchandising. Previously offered as HIDC 4850 and DHM 4850. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 4900 Honors Creative Component
Prerequisites: College of Education and Human Sciences Honors Program participation, senior standing.
Description: Guided creative component for students completing requirements for College Honors in the College of Education and Human Sciences. Thesis, creative project or report under the direction of a faculty member in the major area, with second faculty reader and oral examination. Previously offered as DHM 4900. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 5000 Master's Thesis
Prerequisites: Graduate standing and consent of major professor.
Description: Research related directly to design and merchandising for the master's thesis. Previously offered as CTM 5000 and DHM 5000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 5001 Orientation to Graduate Studies in Design and Merchandising
Description: Process of developing a graduate plan of study in the Department of Design and Merchandising. Fundamental skills needed for successful completion of a DM graduate degree. Previously offered as DHM 5001.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5003 Theoretical Perspectives for Design and Merchandising
Description: A study of terminologies associated with theory. Exploration of key theories and their application to practice and research in design and merchandising. Previously offered as DHM 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5010 Thesis Equivalency for Doctoral Students
Prerequisites: Doctoral student standing and consent of supervising instructor and DM 5013 and STAT 5013, or equivalent courses.
Description: Research related directly to design or merchandising, conducted for the purpose of removing a master's degree research thesis deficiency. Previously offered as DHM 5010. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 5013 Research Developments in Design and Merchandising
Description: Current methods and needs in research for fashion design, interior design and merchandising including the application and integration of research into fashion design, interior design and merchandising practice. Previously offered as DHM 5110 and DHM 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5023 User-Centered Methods for Human Factors Research
Description: A broad overview of Human Factors applications through the methods of User-Centered Design. Theories and methods that influence the assessment of physical, cognitive, social and psychological human factors and the analysis of user needs with application to designed processes, products and environments, explored through reading, lectures, discussion, case studies and course projects. Previously offered as DHM 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5033 Foundations of Sustainability in Merchandising
Description: Introduction to the theory, principles, and practices of sustainability. Examination of environmental, social, and economic sustainability at both the global and apparel and textile industry levels. Exploration of innovative practices and social change strategies for the furtherance of sustainability. Previously offered as DHM 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5043 Technology in Apparel Retail and Consumer Experiences
Description: A study of technology in the field of retail and consumer behavior. Examination of concepts, frameworks, theories, issues, and academic research in content areas. Previously offered as DHM 5043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5050 Biomimetic Industrial Practices
Description: Exploration of sustainable solutions to challenges imposed by human beings through emulation of principles inherent in how nature works with an emphasis on applications in design. Completion of DHM 1101, Wicked Problems of Industrial Practice, is recommended prior to enrolling in this course. May not be used for degree credit with DM 4050. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5053 3D Digital Product Creation
Prerequisites: DM 3023 or permission of instructor
Description: Advance your 2D design skills with 3D digital creation. Understand the importance of the 3D software as it pertains to apparel industry. Introduction to 3D software programs Graduate Level Online only.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5063 Advanced Textiles
Prerequisites: Knowledge of Textiles
Description: An overview on protective textiles and clothing used by workers (e.g., firefighters, oilfield-workers) in high-risk sectors will be provided. Various factors affecting the performance of protective textiles and clothing will also be discussed. The skills related to laboratory experiments on protective textiles and clothing will be developed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5073 Application of Virtual and Augmented Reality
Description: This course focuses on using and applying virtual reality, augmented reality technology and 3D printing through a multidisciplinary approach to solve pressing social problems by blending social science practices with innovative technology. Previously offered as DHM 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5083 Advanced Virtual and Augmented Reality for Social Change
Description: Explores evidence-based design/research informed design through the use and application of Virtual Reality (VR) and Augmented Reality (AR) technology using a multidisciplinary approach to solve current societal problems by applying social science practices with innovative technology. Learn how to develop 3D content, and apply these components effectively in VR/AR, form teams, and develop VR projects proposed by current events and conditions of the world. Turn your creative ideas into useful applications. No prior coding or design experience required. Same course as EDTC 5703.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 5093 Proposal Writing
Prerequisites: DM 5013, with a minimum final grade of "C".
Description: Fundamentals of planning for a research project with an emphasis on the development of literature review. Previously offered as DHM 5112.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5113 Theories of Creative Process in Design and Merchandising
Description: A study of the creative processes used in art, science, business and hybrid disciplines, with application to design and merchandising. Previously offered as DHM 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

DM 5123 Foundations in Sustainability in Apparel & Textiles
Description: Introduction to the theory, principles, and practices of sustainability. Examination of environmental, social, and economic sustainability at both the global and apparel and textile industry levels. Exploration of innovative practices and social change strategies for the furtherance of sustainability. Previously offered as DHM 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5143 Digital Product Creation II
Prerequisites: DM 3043, with a final grade of "C" or higher.
Description: Continue to improve your knowledge and proficiency in 3d with advanced skills with avatars, materials, pattern creation, styling and simulations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5153 Advanced Digital Product Creation
Prerequisites: DM 5143, with a final grade of "C" or higher.
Description: Determine your path to 3D garment creation with advanced 3D design knowledge. Increase your skill set in 3D with advanced rendering, garment construction and animating Avatars.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5173 Advanced Digital Design Communication
Description: Evidence-based design/research informed design through 2D and 3D visualization and presentation. Students will apply 3D and 2D visualization and simulations skills to real world situations through a scientific approach. Previously offered as DHM 5173.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Design & Merchandising

DM 5183 Capstone: Digital Product Creation in Technical Design
Prerequisites: DM 5153, with a final grade of "C" or higher.
Description: Advance your skills and focus your individual path as an artist, designer or tech designer. As a technical designer, it is important to have a grasp of skills required. This course will expand on pattern and garment fit in relation to 3D and actual fit model. We will also expand on creating these garments in multi sizes, garment construction, marker consumption and bill of materials.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5240 Master's Creative Component
Prerequisites: Consent of major professor and department head.
Description: An in-depth design application of theoretical design models and philosophies. A maximum of six hours to be used by graduate students following Plan III for the master's degree. Previously offered as HIDC 5240 and DHM 5240. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

DM 5243 Retail Analytics and Insights
Description: Study of data-driven strategies in retail, focusing on the use of analytics to optimize decision-making. Topics include sales forecasting, customer behavior analysis, inventory management, and market trend identification. Students will learn to leverage data tools and techniques to generate actionable insights for improving retail performance and driving business growth.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5263 Applications of Artificial Intelligence in Design and Design Research
Description: This course explores the integration of Artificial Intelligence (AI) in design practices. Students will gain foundational knowledge in AI and its applications, engage with generative design, data-driven decision-making, and predictive analysis, and understand the ethical implications of AI. Through lectures, workshops, and projects, students will learn to leverage AI tools to enhance creativity, efficiency, research and innovation in their work.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5303 Sociological, Psychological and Economic Aspects of Consumer Behavior
Description: Analysis and integration of social, psychological and economic theories related to consumer acquisition of products. Application and testing of these theories as appropriate to apparel and interior consumption processes. Previously offered as DHM 5303 and 6303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5343 Applied Sensation, Perception and Behavioral Psychology in DM
Prerequisites: DM 5013.
Description: Human sensation, perception and behavior in the areas of technology/product development, the built environment, social change and consumer behavior. Previously offered as DHM 5343 and HIDC 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5353 Graduate Interior Design Studio
Prerequisites: Consent of instructor.
Description: Studio course exploring alternative, research-based design solutions for selected interior environments. Previously offered as DHM 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5360 Advanced Studies in Design and Merchandising
Description: Investigation into special areas in the fields of design and merchandising. Previously offered as HIDC 5360 and DHM 5360. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 5363 Color Theories and Applications for Apparel and Interiors
Prerequisites: Nine hours in DM graduate courses or consent of instructor.
Description: Survey of color theories as they apply to the physical, psychological, and aesthetic aspects of apparel and interiors. Previously offered as DHM 5363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5373 Topics in Building Information Modeling
Description: An introduction to Revit Architecture and discussion of advanced topics on Building Information Modelling. Previously offered as DHM 5373.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Design & Merchandising

DM 5440 Career Internship
Prerequisites: Consent of instructor and department head.
Description: An individualized career-oriented internship. Selected learning experiences in approved work situations in industry, government, education or research institutions related to design or merchandising. Previously offered as CTM 5440 and DHM 5440. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 5533 Theory and Design of Functional Apparel
Prerequisites: DM 2573, DM 3013, DM 5013, or consent of instructor.
Description: A holistic approach to the study of apparel design with an emphasis on integrating knowledge of the needs and functions of the individual, the structural properties of textiles and apparel design. Previously offered as DHM 5533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5623 Professional Advancement in Merchandising
Description: Analysis of leadership and how it affects organizational culture and change through a prism of past and current experiences. Various leadership styles examined and a personal leadership philosophy developed for professional advancement in merchandising. Web-based instruction. Previously offered as DHM 5623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5633 Product Design, Development and Evaluation
Description: Advanced study of issues and management strategies necessary to design and produce a competitively priced product. Examination of the role of globalization and rapidly changing technology on the development of a successful product. Web-based instruction. Previously offered as DHM 5633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5643 Promotional Strategies in Merchandising
Description: Examination of integrated marketing communications (i.e., promotional strategies and techniques) while fostering cultural and global awareness, social responsibility and ethical decision-making in the field of promotion. Web-based instruction. Previously offered as DHM 5643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5663 International Merchandising Management
Prerequisites: Merchandising or business courses or consent of the instructor.
Description: Comprehensive understanding of theory, practices, and trends in international merchandising management. An analysis of global retail systems and the way goods are distributed to consumers in various countries. Previously offered as DHM 5663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5673 Financial Merchandising Implications
Description: Advanced study of financial trends in the merchandising industries; implications related to sole proprietors, partnerships, franchises, S corporations, and C corporations. Foci will be on the financial implications of recent advances in the field that assist graduate students as they embark on careers in academic and/or the merchandising industries. Web-based instruction. Previously offered as DHM 5673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5683 Strategic Planning for the Merchandising Executive
Description: Examination of the merchandising executive planning process utilized to develop successful corporate strategies. Emphasis on the importance of a market orientation for building customer value and sustaining a competitive advantage. Web-based instruction. Previously offered as DHM 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5693 Retail Analytics
Description: Learn advanced data analysis techniques in Microsoft Excel. Develop strategies for managing the flow of goods in the supply chain with no emphasis on forecasting, pricing, managing customer relationships, retail inventory and revenue in the fashion merchandising industry. Previously offered as DHM 5693.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 5810 Problems in Design and Merchandising
Prerequisites: Consent of instructor or department head.
Description: Individual and group investigations and discussions of special problems in the various phases of design and merchandising. Previously offered as CTM 5810 and DHM 5810. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 5830 DM Seminar
Prerequisites: Consent of Instructor.
Description: A selected group of current issues in design and merchandising. Course previously offered as HIDC 5830 and DHM 5830. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 6000 Doctoral Dissertation
Prerequisites: Completion of a master's research thesis or thesis equivalency and consent of major instructor.
Description: Research in design and merchandising for the PhD degree. Previously offered as DHM 6000 and CTM 6000. Offered for variable credit, 1-12 credit hours, maximum of 30 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 6133 Research Methods in Design and Merchandising
Prerequisites: DM 5112 and DM 5013 or equivalent and six credits of graduate level statistics.
Description: Survey and discussion of research methods, experiences in research design and analysis of data. Previously offered as CTM 6133 and DHM 6133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 6363 Anthropometry and Ergonomics in DM
Prerequisites: Graduate standing and DM 6133 or equivalent.
Description: Variability of human body measurements and their relationships (body shape) as determinants for product design. Theory and practice of anthropometry and ergonomics (human factors) as applied to apparel and/or interior design. Comfort, performance, health, and safety issues in product design for men, women, children, and special populations. Previously offered as DHM 6363.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Design & Merchandising

DM 6403 Merchandising Theory Application and Strategy Implementation
Prerequisites: DM 5653.
Description: Integration of marketing, merchandising, and management theories, strategies, models, and frameworks. Application of theories and implementation of strategies relevant to apparel and interior industries. Previously offered as DHM 6403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Design & Merchandising

DM 6410 Independent Study in Design and Merchandising
Prerequisites: Consent of instructor.
Description: Selected areas of design and merchandising for advanced graduate students working toward the doctorate degree. Previously offered as HIDC 6410 and DHM 6410. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 6810 Advanced Problems in Design and Merchandising
Prerequisites: Consent of instructor or department head.
Description: Intensive individual or small-group study of problems in various areas of design merchandising for advanced graduate students who are working toward doctorate degrees. Previously offered as CTM 6810 and DHM 6810. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

DM 6830 DM Seminar
Prerequisites: Consent of instructor.
Description: Problems and recent developments in design and merchandising. Previously offered as HIDC 6830 and DHM 6830. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Design & Merchandising

Design Housing & Merchandising (DHM)

DHM 2033 VR and AR for Social Change
Description: Focus on using and applying Virtual Reality (VR) and Augmented Reality (AR) technology through a multidisciplinary approach to solving current societal problems by applying social science practices with innovative technology. Learn how to develop 3D content, and apply these components effectively in VR/AR, form teams, and develop VR projects proposed by current events and conditions of the world. Turn your creative ideas into useful applications. This is a beginner-level course and is open to all students. No prior coding or design experience is required.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Design & Merchandising

DHM 4001 Design and Merchandising Speakers Colloquium
Description: Seminars presented by distinguished industry professionals. Current issues and implications for the future of apparel and interiors.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Design & Merchandising

DHM 5083 Advanced Virtual and Augmented Reality for Social Change
Description: Explores evidence-based design/research informed design through the use and application of Virtual Reality (VR) and Augmented Reality (AR) technology using a multidisciplinary approach to solve current societal problems by applying social science practices with innovative technology. Learn how to develop 3D content, and apply these components effectively in VR/AR, form teams, and develop VR projects proposed by current events and conditions of the world. Turn your creative ideas into useful applications. This course is open to all graduate students. No prior coding or design experience is required. Same course as EDTC 5703.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Design & Merchandising

Diversity (DIVR)

DIVR 2003 Inclusion Leadership (DS)
Description: Focus on developing and refining leadership skills in order to prepare for success in personal and professional lives. Variety of leadership theoretical perspectives to broaden perspectives; develop inclusive leadership skills; increase knowledge regarding global networking; and clear a pathway to successful living within a global society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science
General Education and other Course Attributes: Diversity, Society & Human Behavior

DIVR 2213 Minorities in Science and Technology: Contributions Past, Present and Future (DS)
Description: Women, racial and ethnic minorities are underrepresented in science and technology in America. STEM (science, technology, engineering, and mathematics) fields are traditionally perceived as unwelcoming for these groups. This course examines this idea by focusing on the notion of a "Chilly Climate" for minorities in technical fields. The contributions of prominent women and minority scientists and engineers in America will be explored, as well the struggles they overcame to achieve. This course also explores current issues and why inclusiveness matters today and in the future.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science
General Education and other Course Attributes: Diversity, Society & Human Behavior

DIVR 2323 Diversity and Inclusion in 21st Century America (DS)
Description: This course is designed to increase awareness and understanding of diversity and inclusion in the United States. It focuses on the complex and often controversial issues of race, sex, gender, sexual orientation, social class, and disability by assessing the effects these categories have on society. This course will examine the historical context and how the United States has reached current categories of difference
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science
General Education and other Course Attributes: Diversity, Society & Human Behavior

Economics (ECON)

ECON 1113 The Economics of Social Issues (S)
Description: Issues-oriented approach. Basic economic principles introduced and developed through study of important social issues: for example, inflation, unemployment, poverty, discrimination, crime, population growth and environmental quality. Develops the economist's approach to social problems, and evaluates the contribution of economics to their solution. No general education credit for students also taking AGEC 1113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics
General Education and other Course Attributes: Society & Human Behavior

ECON 2003 Microeconomic Principles for Business
Description: Goals, incentives and outcomes of economic behavior with applications and illustrations relevant to business: operation of markets for goods, services and factors of production; the behavior of firms and industries for different types of competition; and international exchange. May not be used for degree credit with ECON 2103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 2103 Introduction to Microeconomics (S)
Description: Goals, incentives and outcomes of economic behavior with applications and illustrations from current social issues: operation of markets for goods, services and factors of production; the behavior of firms and industries in different types of competition; income distribution; and international exchange. May not be used for degree credit with ECON 2003. No general education credit for students also taking AGEC 1113. Previously offered as ECON 2023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics
General Education and other Course Attributes: Society & Human Behavior

ECON 2203 Introduction to Macroeconomics
Prerequisites: ECON 2103 or ECON 1113 or AGEC 1113 or ECON 2003.
Description: The functioning and current problems of the aggregate economy: determination and analysis of national income, employment, inflation and stabilization; monetary and fiscal policy; and aspects of international interdependence. Previously offered as ECON 2013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3010 Special Topics in Economics
Prerequisites: ECON 2203, prior approval of instructor.
Description: Analysis of a contemporary topic in economics. Course content will vary to reflect changing social issues and trends in applied economics. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Economics

ECON 3023 Managerial Economics
Prerequisites: ECON 2103 or AGEC 1113 or ECON 2003.
Description: Application of economic theory and methodology to decision problems of private industry, nonprofit institutions and government agencies; demand and cost analysis, forecasting, pricing and investment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3033 Economics of Entrepreneurship and Innovation
Prerequisites: 3 credit hours in Economics.
Description: Explores the process of economic innovation and entrepreneurship from both microeconomic and macroeconomic perspectives. Key topics include risk and uncertainty, the psychology of innovation, institutional change, product versus process innovation, the externality of innovation, innovation profit, innovation life cycle, innovation diffusion, and business cycle instability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3043 Real Estate Economics
Prerequisites: ECON 2003 or ECON 2103.
Description: Theoretical and empirical development of an understanding of economic factors that shape and influence markets for real property. Topics include theory of land markets and locational choice, studies of changing economic activities, demographic trends, transportation, and local government behavior as they affect real estate.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3113 Intermediate Microeconomics
Prerequisites: ECON 2103 or ECON 2003 and either MATH 2103 or MATH 2123 or MATH 2144.
Description: How the market organizes economic activity and an evaluation of its performance. Principles of price theory developed and applied to the interactions of consumers, producers and resource owners in markets characterized by different degrees of competition.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3123 Intermediate Macroeconomics
Prerequisites: ECON 2203 and either MATH 2103 or MATH 2144.
Description: Development of a theoretical framework for studying the determinants of national income, employment and general price level. National income accounting, consumption, investment, government spending and taxation, the supply of and demand for money. Monetary, fiscal and incomes policies considered with regard to unemployment, inflation and economic growth.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3213 Game Theory and Experimental Economics
Prerequisites: ECON 2003 and either MATH 2103 or MATH 2123 or MATH 2144.
Description: The fundamentals of strategic actions presented in a game theory context and the validation of these ideas with economic experiments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3313 Money and Banking
Prerequisites: ECON 2203.
Description: The economics of money and banking. Operations of commercial banks and structure and competition of the banking industry. Organization and operation of the Federal Reserve System and its effects on interest rates, employment and prices. An introduction to monetary economics and international banking concludes the course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3423 Public Finance
Prerequisites: ECON 2003 or ECON 2203.
Description: The economics of the government sector. Scope of government activity, efficiency in government expenditures, federal budget, fiscal and debt management policy. Principles of taxation. Major tax sources, tax distribution, tax issues. Current public finance problems such as revenue sharing, negative income tax, urban transport systems and national health insurance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3513 Labor Economics
Prerequisites: ECON 2003.
Description: The economic analysis of labor markets. Topics include labor supply and demand, the impact of education and training, labor migration, the structure of wages, discrimination and labor unions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3613 International Economic Relations (GS)
Prerequisites: ECON 2003 or ECON 2203.
Description: International trade and finance; international economic organizations; the foreign economic policy of the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics
General Education and other Course Attributes: International Dimension, Society & Human Behavior

ECON 3703 Mathematics for Business and Economics
Prerequisites: (MATH 1483 or MATH 1513) and (ECON 2003 or ECON 2103).
Description: Essential mathematical concepts for business and economic analysis, with particular emphasis on algebra, calculus, and optimization techniques used in economic decision-making. Topics include applications of basic algebra, differential and integral calculus, and optimization theory to solve problems in business and economics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics&Legal Studie

ECON 3713 Introduction to Industrial Organization
Prerequisites: ECON 2003 and either MATH 2103 or MATH 2123 or MATH 2144.
Description: A branch of Microeconomics specializing in questions related to imperfect competition, effect of market structure on behavior of firms, monopoly power, anti-competitive practices and anti-trust issues. An introduction on strategic competition between firms, how this is related to market structure and market power.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3723 The Economics of Sport
Prerequisites: ECON 2103 or ECON 2003.
Description: Using economic analysis to understand the world of professional and amateur sport. Emphasis will be on economic decision-making relevant to the teams, leagues and institutions in the world of sport.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 3823 American Economy: The Past and Present (S)
Description: Economic development and economic forces in American history; emphasis upon industrialization and its impact upon our economic society since the Civil War.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics
General Education and other Course Attributes: Society & Human Behavior

ECON 3903 Economics of the Environment
Prerequisites: ECON 2103 or ECON 2003.
Description: Economic and political factors that influence the formation and implementation of environmental policy. Environmental policy instruments such as pollution taxes, standards and marketable pollution permits are discussed. Measurement of environmental damages and risk are also considered.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 4043 Real Estate and Capital Markets
Prerequisites: ECON 2003 or ECON 2203.
Description: Understanding of how debt and equity secondary markets linked to real estate assets. Topics include the impact of institutional forces on the real estate sector, development of a framework of institutional real estate private and public equity and capital markets including the concept of market efficiency, modern portfolio theory applications, and market measures of risk and return under current and future circumstances with a particular focus on market activity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 4113 Energy Economics: Traditional and Renewable Energy Markets
Prerequisites: ECON 2103 or ECON 2003 and either MATH 2103 or MATH 2144.
Description: This course examines economic theory, empirical perspectives, and the political economy of energy supply and demand. It discusses aspects of local, national and global markets for oil, natural gas, coal, electricity, nuclear power, and renewable energy. In the course, we will examine public policies affecting energy markets including taxes, price regulation, energy efficiency, and control of emissions. Same course as ECON 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 4213 Econometric Methods
Prerequisites: ECON 2003 or ECON 2203. STAT 2013 or STAT 2023 or STAT 2053.
Description: Basic quantitative methods used in economic analysis emphasizing applications to economic problems and interpretation of empirical results. Statistical analyses, regression and forecasting techniques using computer programs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 4223 Business and Economic Forecasting
Prerequisites: ECON 2003 or ECON 2203. STAT 2013 or STAT 2023 or STAT 2053.
Description: Forecasting business and economic variables. Regression models and time series models such as exponential smoothing models, seasonal models, and Box-Jenkins models. Evaluation of methods and forecasting accuracy. Application of methods using computer programs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 4233 Econometric Applications
Prerequisites: ECON 2203 and 3 hours of statistics.
Description: Econometric applications and data analysis used to conduct economic research and policy analysis. Econometric methods include the basics of linear regression, hypothesis testing, panel data, differences-in-differences, instrumental variables, and quantile regression. The emphasis is on the development of intuition and application rather than econometric theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 4643 International Economic Development (GS)
Prerequisites: ECON 2003.
Description: Problems of underdeveloped economics related to the world economy; obstacles to economic growth and policies for promoting growth.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics
General Education and other Course Attributes: International Dimension, Society & Human Behavior

ECON 4850 Applied Studies in Economics
Prerequisites: 12 credit hours in economics and consent of instructor.
Description: Structured internship or field project with supporting academic study. Offered for variable credit,1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Economics
Additional Fees: Domestic Travel Course Tuition fee of $185 and Study Away fee of $100 apply.

ECON 4913 Urban and Regional Economics
Prerequisites: ECON 2003 or ECON 2203.
Description: Theoretical, historical, and empirical examination of the economic forces that shape growth, development, land use, and location decisions in towns, cities and regions. Presents economic explanation for several urban problems such as sprawl, segregation, crime, pollution, traffic congestion, and inadequate housing and education. The role of state and local governments in addressing these problems is discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 4933 Applied Economics
Prerequisites: ECON 3113 and ECON 3123 and 6 additional hours of upper-division economics.
Description: Essential skills in applied economics, including data collection, economics analysis, and presentation of findings. Specific applications may come from international trade and finance, econometrics, energy economics, public finance, labor economics, economic history, regional economics, and development, etc.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Economics

ECON 4993 Economics Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a faculty member, with second faculty reader and oral examination. Required for graduation with departmental honors in economics.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Economics
General Education and other Course Attributes: Honors Credit

ECON 5000 Research and Thesis
Description: Workshop for the exploration and development of research topics. Research leading to the master's thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Economics

ECON 5003 Research Report
Prerequisites: Consent of committee chairperson.
Description: Supervised research for MS report.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Economics

ECON 5010 Research and Independent Studies
Prerequisites: Consent of departmental committee under a workshop arrangement or supervised independent studies.
Description: Offered for variable credit, 1-6 credit hours, maximum of 10 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Economics

ECON 5033 Macroeconomic Analysis
Prerequisites: Three hours of economics or consent of instructor.
Description: This course is a study of the determinants of aggregate output, employment, price level, and interest rates over the business cycle, including international aspects. The course examines the use of monetary and fiscal policies in both closed and open economies, including under differing exchange rate regimes. Students also are introduced to basic theories of long-run economics growth.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ECON 5043 Microeconomic Analysis
Prerequisites: ECON 3113 and MATH 2144 or consent of instructor.
Description: A calculus-based microeconomics course developing basic consumer, producer, and equilibrium models.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 5113 Managerial Economics
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Economic theory applied to business decision-making. Concepts of microeconomics and macroeconomics related to understanding the economic system, analysis of policy, forecasting, and international economics. No credit for PhD students in economics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ECON 5173 Energy Economics
Prerequisites: ECON 5113 or ECON 2103 or equivalent.
Description: Develop tools necessary to examine energy markets from an economics perspective and discuss aspects of local, national and global markets for oil, natural gas, coal, electricity, and renewable energy. The course examines public policies affecting energy markets including taxes, regulation, energy efficiency and control of emissions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ECON 5213 Econometric Analysis
Prerequisites: STAT 3013; consent of instructor.
Description: This course provides an in-depth exploration of econometric methods, focusing on their application to real world economic and business data, while understanding their theoretical foundations. Topics include linear regression, hypothesis testing, model selection, and advanced methods such as instrumental variables, panel data analysis, and policy evaluation. The course will equip students to conduct rigorous empirical research and critically evaluate existing econometric studies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

ECON 5263 Introduction to Econometrics II
Prerequisites: ECON 5213 or equivalent; consent of instructor.
Description: Introductory course in econometric regression analysis for first year graduate students in economics, business and agricultural economics. Topics include microeconometric applications using panel data, qualitative choice and limited dependent variable models. Also, includes applications in macroeconomics and financial economics using regression analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 5353 Austrian Economics: Theory & History
Description: Explore the Austrian school of economics, its origins, history and theory. Austrian economics views the market as a dynamic process with entrepreneurship as its driving force. In contrast to competing paradigms, the Austrian school consistently applies value subjectivity, acknowledges the highly heterogeneous nature of productive capital and relies primarily on a method that is specific for the social sciences. Same course as EEE 5103. May not be used for degree credit with EEE 4103 or ECON 4353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 5603 Global Economics
Description: This course presents an introduction to economic issues from a global perspective for the non-specialist. It emphasizes the problems and challenges the process of globalization poses to national economies. The first part of the course presents the main theories of international trade and their relevance to explaining current global trade patterns. The second part of the course examines the foreign exchange market and the process of exchange rate determination. It covers various international financial issues such as global current account imbalances, the role of the dollar in international financial markets and international currency crises. Same course as GS 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 5733 Energy Economics: Traditional and Renewable Energy Markets
Prerequisites: ECON 2103 or ECON 2003 and either MATH 2103 or MATH 2144.
Description: This course examines theory, empirical perspectives, and the political economy of energy supply and demand. It discusses aspects of local, national, and global markets for oil, natural gas, coal, electricity, nuclear power, and renewable energy. In the course, we will examine public policies affecting energy markets including taxes, price regulation, energy efficiency, and control of emissions. Same course as ECON 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6000 Research and Thesis
Prerequisites: Approval of advisory committee.
Description: Workshop for the exploration and development of research topics. Research leading to the PhD dissertation. Offered for variable credit, 1-12 credit hours, maximum of 30 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Economics

ECON 6010 Seminar in Economic Policy
Description: Intensive analysis of selected problems in economic policy. Individual research, seminar reports and group discussion of reports. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Economics

ECON 6013 Microeconomic Theory I
Prerequisites: ECON 5223 or ECON 6323 or consent of instructor.
Description: Contemporary price and allocation theory with emphasis on comparative statics. Topics include consumer theory, firm theory, partial equilibrium in competitive, monopoly and imperfect competition environments, and general equilibrium. Course previously offered as ECON 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6023 Microeconomic Theory II
Prerequisites: ECON 6013.
Description: This course aims to equip students with rigorous mathematical and quantitative skills to analyze important questions in modern microeconomics. The first half is the study of non-cooperative game theory, including both static and dynamic games, games of both complete and incomplete information. The second half of the course is to examine decision-making under uncertainty and the economics of markets with incomplete and asymmetric information. Course previously offered as ECON 6133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6033 Macroeconomic Theory I
Prerequisites: ECON 5033 or consent of instructor.
Description: This course offers a robust foundation in contemporary macroeconomic theory. It primarily covers key topics such as inflation, unemployment, exogenous and endogenous growth, consumption, investment, and financial markets within the framework of dynamic optimization. By the end of the course students will have developed the necessary quantitative skills to critically engage with the literature relevant to dissertation level research. Course previously offered as ECON 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6043 Macroeconomic Theory II
Prerequisites: ECON 6033.
Description: This course introduces the concepts and techniques of modern macroeconomic theory. Students will learn mathematical and analytical skills to solve dynamic stochastic general equilibrium (DSGE) models, the workhorse models of modern macroeconomics. Students will be able to speak the recursive language, write code in MATLAB, and apply these techniques to analyze questions in macroeconomics. The course will focus mainly on recursive methods, dynamic programming, and short-run economic fluctuations. Previously offered as ECON 6143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6113 Seminar in Economic Theory
Description: Microeconomics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6123 Seminar in Economic Theory
Description: Macroeconomics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6213 Econometrics I
Prerequisites: ECON 5213 or consent of instructor.
Description: Introduction to rigorous theory and empirical application of econometric concepts and asymptotic theory based on linear algebra. Topics include conditional expectation, least squares regression, asymptotic theory, hypothesis testing, and instrumental variables. Course previously offered as ECON 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6233 Time Series Econometrics
Prerequisites: ECON 5243 or equivalent.
Description: This course provides time series analysis in the context of economic issues, combining rigorous measure-theoretic treatments with a strong emphasis on both theoretical concepts and empirical applications. Topics include ARMA, ARCH/GARCH, GMM, unit roots, cointegration, error correction, VAR, and nonlinear models. By the end of the course, students will have developed the necessary time series econometric skills to critically engage with the literature relevant to dissertation-level research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6243 Econometrics II
Prerequisites: ECON 6213.
Description: Advanced econometric theory with microeconometric applications. Topics include instrumental variables estimation, generalized method-of-moments estimation, regression analysis using cross- section survey and panel data, and program evaluation methods. At the end of the course, students should be capable of (i) using the most appropriate and up to date econometric tools for their research, and (ii) critically reading and evaluating applied research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6323 Mathematical Economics I
Prerequisites: ECON 3113 and MATH 2163 or equivalent.
Description: This course provides a foundational introduction to mathematical tools essential for advanced economic analysis. We will delve into cornerstone mathematical techniques in economics such as optimization theory and comparative statics. The curriculum covers matrix algebra, differential and integral calculus, optimization, differential and difference equations, and optimal control theory, with applications drawn from economic theory. Previously offered as ECON 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6613 International Finance
Prerequisites: Permission of instructor.
Description: This course addresses topics in international finance and open economy macroeconomics. Topics include Structural Vector Autoregressions (SVAR), Bayesian estimation of DSGE models, state-dependent local projection models, sovereign default, and monetary and fiscal policy interaction. By the end of the course, students will be equipped with the quantitative tools necessary for rigorous empirical research and policy analysis in international finance. Course previously offered as ECON 5613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6623 Economic Development I
Prerequisites: Permission of instructor.
Description: This course provides a foundation for theoretical and empirical analysis of developing economies. Topics include the neoclassical household theory, rural economies, financial markets, human capital, program evaluation, and institutions. Course objectives: (i) offer a critical overview of development economics literature; (ii) present methodological approaches, with a focus on advances on experimental, quasi-experimental and observational data; (iii) prepare students for conducting original research & for critically evaluating research in the field. Course previously offered as ECON 5623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6633 International Trade
Prerequisites: Permission of instructor.
Description: This course examines the causes and consequences of international trade. It is structured around recent research papers at the forefront of the field. Students will learn techniques for estimating trade models and assessing counterfactuals as relates to the effects of global value chains, foreign direct investment (FDI), and multinational production, as well as the implications of trade on inequality, the international diffusion of ideas, and other economic outcomes. Course previously offered as ECON 5633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6643 Economic Development II
Prerequisites: Permission of instructor.
Description: This course provides a foundation for theoretical and empirical analysis of developing economies. Topics include the neoclassical household theory, rural economies, financial markets, human capital, program evaluation, and institutions. Course objectives: (i) offer a critical overview of development economics literature; (ii) present methodological approaches, with a focus on advances on experimental, quasi-experimental and observational data; (iii) prepare students for conducting original research & for critically evaluating research in the field. Course previously offered as ECON 5643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6903 Regional Economic Analysis and Policy
Description: The course acquaints students with the frontiers in regional, spatial, and rural economics as well as the historical background of current research. The course begins with the study of key models that describe regional economies. This is followed by an in-depth analysis of selected recent applied economic papers on key topics and methods related to differing dimensions of regional growth and development. Course previously offered as ECON 5903.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

ECON 6913 Urban Economics
Prerequisites: Permission of instructor.
Description: This course explores the economic forces driving city formation, growth, and development. We will delve into both intra-city and inter-city dynamics, examining topics such as agglomeration, economic growth, education, migration, land use, housing, and urban policy. Our focus is on understanding the economics of cities, urban policies, as well as the research methodologies employed in the field. By analyzing a curated selection of research articles, we aim to provide students with a solid foundation in urban economics and related fields. Course previously offered as ECON 5913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Economics

Education & Human Sciences (EDHS)

EDHS 1111 First Year Seminar Supplement
Description: Experiences that effectively facilitate transition into the College of Education and Human Sciences at OSU. Introduction to the student support services available throughout the college. Career development through connections among the student's major curriculum, general education courses, career goals, and eventual careers. Required of all freshmen in CEHS. May not be used for degree credit with HS 1112, HES 1112 or EDHS 1112. Same course as EDHS 3111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 2000 Special Topics in Education
Description: Specialized readings in education. Previously offered as EDUC 2000. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 2080 Introduction to International Experiences
Prerequisites: Consent of Associate Dean.
Description: Introduction to international cultures through an educational experience outside the USA. Previously offered as HS 2080. Offered for variable credit, 1-9 credit hours, maximum of 15 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 2111 Career Exploration in Education and Human Sciences
Description: Acquisition of career information critical to introduce students to the world of work. Career searches, processes for interviewing and acquiring careers. Previously offered as HES 2111 and HS 2111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 2210 Professional Field Experience in Education and Human Sciences
Prerequisites: Consent of instructor and major in College of Education and Human Sciences and freshman or sophomore standing.
Description: Supervised field experience in professional setting related to Education and Human Sciences field of study. Previously offered as HS 2210. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 2410 Innovative Education Studies
Description: Designed to meet unique or special needs of individuals involved in education. Topics include contemporary approaches to meeting educational challenges on the professional as well as the personal classroom experience. Previously offered as EDUC 2510. Graded on a pass-fail basis. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 2510 Education and Human Sciences First-year Research Seminar
Prerequisites: College of Education and Human Sciences major; Admission to the Freshman Research Scholars program.
Description: Seminar for College of Education and Human Sciences' first-year students participating in the Freshman Research Scholars Program. Includes exploration of what "research" means in a variety of settings and introduces basic research skills and processes. Previously offered as HES 2510 and HS 2510. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 2511 Dynamics of Leadership in Education and Human Sciences
Prerequisites: Consent of Associate Dean.
Description: Major topics related to personal and professional development, including developing and utilizing leadership skills, teamwork and team building, total quality management, ethics, public speaking, and business and social etiquette. Open to sophomores in the College of Education and Human Sciences who have been accepted in the Ambassadors student organization. Previously offered as HES 2511 and HS 2511.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 3080 International Experience
Prerequisites: Consent of associate dean.
Description: Participation in a formal or informal educational experience outside of the USA. Previously offered as EDUC 3080, HES 3080 and HS 3080. Offered for variable credit, 1-18 credit hours, maximum of 36 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 3090 Study Abroad
Prerequisites: Consent of the Office of the Study Abroad and associate dean of the College of Education and Human Sciences.
Description: Participation in a formal study abroad program in which a semester or year is spent in full-enrollment at a university outside the U.S. Previously offered as EDUC 3090 and HES 3090 and HS 3090. Offered for variable credit, 1-18 credit hours, maximum of 18 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 3110 Honors Directed Study
Prerequisites: Honors College Participation.
Description: Individualized directed study approved by a sponsoring professor or Honors coordinator. Previously offered as EDUC 3110. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences
General Education and other Course Attributes: Honors Credit

EDHS 3111 Preparing for Your Future Career
Prerequisites: Major in the College of Education and Human Sciences
Description: This seminar is designed to guide students in the College of Education and Human Sciences (CEHS) as they navigate their academic, career, and personal journeys. The course fosters connections with peers, faculty, and alumni while encouraging students to reflect on their passions and align them with their academic and career pursuits. Exploration of your future career goals, the requirements to enter that career and steps to complete while in college are a focus. Must be a student in CEHS. Equivalent to EDHS 1111. May not be used for degree credit with EDHS 1112.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 3112 Education and Human Sciences First-Year Seminar for Transfer Students
Description: Experiences that effectively facilitate transition for the first year transfer student to the College of Education and Human Sciences at OSU. Introduction to the developmental advising process to ensure a successful advisor/advisee partnership. Career development through connections among the student's major curriculum, general education courses, career goals, and eventual careers. Analysis of case scenarios. Previously offered as HS 3112, HES 3112 and HES 3111.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 3210 Internship in Education and Human Sciences
Prerequisites: Consent of instructor and major in CEHS and sophomore standing and EDHS 1112 or EDHS 3112.
Description: Supervised internship related to an Education and Human Sciences field of study. Previously offered as HS 3210 and HES 3210. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 3511 Public Policy and Education and Human Sciences
Prerequisites: Consent of Associate Dean.
Description: The impact of human, economic and material resources. Analysis of developmental, ethical, cultural and public policy factors that influence need satisfaction. Open to juniors and seniors in the College of Education and Human Sciences who have been accepted in the Ambassadors student organization. Previously offered as HS 3511 and HES 3511.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 4000 Honors Seminar in Education and Human Sciences
Prerequisites: Honors College Participation.
Description: In-depth interdisciplinary seminar focused on a current national or international issue having an impact on quality of life. Exploration of the issue utilizing various strategies and national resources. Dialogue and debate from multiple perspectives with emphasis on verbal and written expression. Previously offered as HS 4000 and HES 4000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences
General Education and other Course Attributes: Honors Credit

EDHS 4050 Honors Colloquium
Prerequisites: Honors College Participation.
Description: Study of an interdepartmental and interdisciplinary nature of various important issues and aspects as related to the field of education and human sciences. Provides an intellectual challenge for the able student with a strong dedication to scholarship. Previously offered as EDUC 4050. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences
General Education and other Course Attributes: Honors Credit

EDHS 4110 Professional Education Seminar
Description: Problems, trends, and pertinent education issues. May include simulation, small-group instruction and field-based experiences. For the pre-service or in-service level. Previously offered as EDUC 4110. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 5090 Study Abroad
Prerequisites: Graduate student standing, consent of the Study Abroad office and associate dean of the college.
Description: Participation in an OSU reciprocal exchange program. Offered for variable credit, 1-12 credit hours, maximum of 24 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 5110 Directed Studies in Education and Human Sciences
Prerequisites: Consent of instructor.
Description: Directed individual study in Education and Human Sciences. Previously offered as HS 5110 and HES 5110. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 5210 Contemporary Educational Issues
Description: Contemporary topics and issues in the broad field of education. May include television interaction, small group discussion and outreach and field experiences. Written reports required. Previously offered as EDUC 5110. Graded on a pass-fail basis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 5240 Master's Creative Component
Prerequisites: Consent of associate dean.
Description: An in-depth application of theoretical models and philosophies related to area of specialization. Previously offered as HES 5240 and HS 5240. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

EDHS 5533 Aging Policy and Advocacy
Description: This course covers the formation, implementation, and impact of various policies and programs focused on providing services and supports for the social, financial, and physical well-being of aging persons within their communities. A primary focus is placed on addressing challenges and gaps in policies, as well as issues of unmet needs and inequity through advocacy and policy-making. Web-based instruction. Previously offered as HES 5533 and HS 5533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

EDHS 5543 Interdisciplinary Perspectives in Environments in Aging
Description: This course overviews theoretical perspectives in environments for aging, as well as factors involved in the continuum of environments for aging including aging in place, retirement communities, long term care, memory care, and end of life care. Students will be introduced to a wide range of overlapping domains such as environmental psychology, cognitive science, sociology, physiology, architectural and interior design, human geography and urban/rural planning. Web-based instruction. Previously offered as HES 5543 and HS 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 5633 Applied Research Methods and Evaluation of Aging Programs
Description: This course will familiarize students to applied research methods as they apply to aging programs, such as: needs assessment, formative research, process evaluation, and impact assessment. Students will learn theories and concepts of evidence-informed practice and program evaluation, perform the skills to conduct methodologically sound program evaluation research, and gain practical experience and strategies for application. Previously offered as HES 5633 and HS 5633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

EDHS 5910 Educational and Human Sciences Field Experiences
Prerequisites: Consent of instructor.
Description: Guided field experience appropriate to a specific program of study. Field experience preceded and followed by appropriate on-campus seminars, readings and reports. Previously offered as EDUC 5910. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 6100 Dissertation in Practice Hours
Description: To complete the Professional Practice Doctorate program, candidates must successfully conduct and defend a dissertation in practice. A dissertation in practice or DiP seeks to improve a problem of practice. Dissertation in Practice hours are variable. Offered for variable credit, 1-12 hours, maximum 25 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean Education/Human Sciences

EDHS 6183 Dynamics of Innovation and Change
Description: This interdisciplinary course integrates foundational and emerging theories and practical applications to address real-world challenges, fostering innovative strategies and leadership in various contexts
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 6383 Communicating and Sustaining Innovation and Change
Description: This graduate-level course explores the interconnected themes of change management, organizational communication, and innovation implementation within complex organizational contexts. Drawing from theories, research, and practical applications within the varied fields of education and human sciences, this course equips practitioners with the knowledge, skills, and strategies necessary to navigate, lead, and communicate organizational change effectively.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 6483 Working with Lifelong Learners of Diverse Journeys
Description: This class builds foundational understanding of the contemporary, diverse journeys students bring to learning spaces. Students are prepared to be effective at developing and facilitating further and continuing educational experiences through exploration and understanding of instructor as learning partner/facilitator, andragogical considerations, the design of significant learning experiences, and student diverse backgrounds/hidden populations in contemporary learning spaces.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 6503 Dissertation in Practice Proposal Writing
Description: This course is designed for in-depth support with identifying significant problems of practice in specific professional contexts, writing thorough research proposals to address those problems, understanding the ethical dimensions of doing research, and preparing for the proposal defense phase of a professional doctorate. This course emphasizes theoretical knowledge and practical skills in research design, peer reviewing, academic writing, and presenting work.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

EDHS 6993 Graduate Seminar in Education and Human Sciences
Prerequisites: Consent of instructor.
Description: Analysis of philosophy, critical issues, current developments and interrelationships among elements in education and human sciences. Previously offered as HS 6993 and HES 6993.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean Education/Human Sciences

Educational Leadership (EDLE)

EDLE 5000 Thesis Or Report
Prerequisites: Consent of instructor.
Description: Master's students may earn up to two hours of credit for a report or six hours of credit for a thesis. Students working on a specialist's report may earn a maximum of 10 hours of credit. Previously offered as EAHE 5000. Offered for variable credit, 1-10 credit hours, maximum of 10 credit hours.
Credit hours: 1-10
Contact hours: Contact: 1-10 Other: 1-10
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 5253 The Principalship
Prerequisites: 5000-level course in school administration or equivalent.
Description: Strategies, techniques and solutions used by the principal in the administration and leadership of a public school. Previously offered as EDLE 6253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 5323 School Finance
Description: Development of conceptual bases in economics of education, taxation, distribution systems, policy analysis; application to Oklahoma school finance; and introduction to budget development. Previously offered as EDLE 6323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 5473 Supervision of Instruction
Description: Application of modern approaches to instructional supervision through practice in recording and analyzing teacher behavior in actual classroom settings. Clinical and group methods for improving instruction. Previously offered as EDLE 6473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 5720 Education Workshop
Description: Analysis of organizational, administrative, and instructional problems by common schools and higher education personnel. Previously offered as EAHE 5720. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 5723 Education Law
Description: Study of the legal framework of education (constitutional law, case law, and Oklahoma law) with emphases on church-state issues, tort liability, teachers' rights, and student rights.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 5800 Embedded Field Studies Internship
Description: Practicum experiences designed to relate ideas and concepts to problems encountered in educational settings by faculty and administrators.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 5813 Leadership Theory and Ethical Decision Making
Description: Developing understanding of leadership theory and issues related to decision-making in educational settings. Exploring leadership and decision-making within an ethical context. Previously offered as EAHE 5813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 5883 Field Studies Internship I
Prerequisites: Consent of instructor.
Description: Directed internship experiences designed to relate ideas and concepts to problems encountered in education by faculty and administrators. Previously offered as EDLE 5880.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 5893 Field Studies Intern II
Prerequisites: Consent of instructor.
Description: Directed advance internship experiences designed to relate ideas and concepts to problems encountered in educational organizations by faculty and administrators.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: EDLE 5893 fee of $75 applies.

EDLE 5953 Developing Educational Organizations
Prerequisites: EDLE 5813.
Description: Understanding and critically analyzing conventional and novel approaches to the climate and governance of schools and higher education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6000 Doctoral Dissertation
Description: Required of all candidates for the Doctor of Education degree. Credit given upon completion of the thesis. Previously offered as EAHE 6000. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 6003 Prospectus
Description: Decision-making processes used in educational systems and use of modern technologies for curricular enhancement and professional development. Previously offered as EAHE 6003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6143 Resources for the Study of Educational Leadership
Description: Introduction to research traditions, tools and processes that are integral to the study of educational leadership.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6243 Connecting Theory and Practice in Administering Schools
Description: Application of research findings and theoretical concepts to best practice in administering educational organizations. Previously offered as EAHE 6243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6343 Problem Solving in School Administration
Description: Identifying and analyzing administrative problems, individually and collectively, in school settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6353 Data for District Improvement
Description: Integration of theory and practice through examination of roles and responsibilities of the superintendent. Particular emphasis on leadership, communications, and the changing nature of public education. Previously offered as EAHE 6353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6363 Strategic and Financial Planning in Educational Organizations
Prerequisites: Admission to the Graduate College and EDLE 5323 or equivalent.
Description: Investigation of problems in education finance policy within the interconnected concepts of liberty, equity, equality, adequacy and efficiency.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6393 Schools as Human Systems
Description: Analysis and critique of current issues in school personnel administration such as recruitment, selection, promotion, morale, salary, staff relations and teacher assessment. Previously offered as EAHE 6393.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6423 The Politics of Education
Description: Activities of schools as they relate to the political environment, e.g., voter behavior, change strategies and community power structures. Previously offered as EDLE 6420.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6453 Special Topics in Education Law
Description: Analysis and critique of selected topics in school law relating to public school administration. Previously offered as EAHE 6453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6483 School Leadership, Culture and Ethics
Prerequisites: Admission to the School Administration doctoral program.
Description: Ethical dilemmas and leadership are explored. Personal ethics are studied in terms of integrity in leadership roles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6493 Literature Review for School Improvement
Prerequisites: Admission to the School Administration doctoral program.
Description: Focus on the theory and practice of school improvement/reform, especially addressing conditions of underachievement and performance gaps among diverse populations. Knowledge and skill related to understanding evaluating, and implementing school improvement/reform practices. Addresses Oklahoma licensure standards related to the provision of effective instructional practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6603 Theoretical Foundations of Leadership
Description: Selected organizational typologies, conceptualizations and theoretical frameworks as they relate to organizational behavior and behavior of personnel in organizations. Previously offered as EAHE 6603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6633 Politics, Power and Partnerships in Education
Description: Promoting student success, school mission and goals through collaborating with faculty and community members, responding to diverse community interests and needs, and mobilizing community resources. Previously EDLE 5633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6650 Problems in Educational Administration
Description: Special administrative problem in common schools or higher education, e.g., school plant, school/community relations, administration and the instructional programs, attrition and finance. Previously offered as EAHE 6650. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 6710 Special Problems
Description: Assists administrators with either recurrent or unique problems arising in common schools or in higher education. Emphasizes evaluation and planning related especially to staff, programs and faculty needs. Previously offered as EAHE 6710. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 6850 Directed Reading
Description: Directed reading for students with graduate standing. Previously offered as EAHE 6850. Offered for variable credit, 1-4 credit hours, maximum of 6 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 6853 Research Traditions in Educational Leadership
Description: Educational research design (including literature review, elements of a research proposal, and major research paradigms) supporting the field of School Administration. May not be used for degree credit with HESA 6853.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6870 Seminar
Description: Topical issues related to administration and/or higher education, including research techniques available to analyze such topics. Previously offered as EAHE 6870. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 6873 Evaluating District Programs
Prerequisites: Graduate standing.
Description: Practical application of decision-making from a systems perspective with a focus on identifying, collecting, organizing, and analyzing school district level data.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDLE 6883 Internship in Education I
Prerequisites: Consent of instructor.
Description: Directed internship experiences designed to relate ideas and concepts to problems encountered in education by faculty and administrators. Previously offered as EDLE 6880.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 6893 Internship in Education II
Prerequisites: Consent of instructor.
Description: Field experiences in a variety of educational work settings.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDLE 6910 Practicum
Prerequisites: Consent of instructor.
Description: Required of all candidates for the Specialist in Education degree. Designed to help the student carry out an acceptable field study or research problem. Credit given upon completion of the written report. Offered for variable credit, 1-5 credit hours, maximum of 9 credit hours.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

Educational Psychology (EPSY)

EPSY 1003 Learning to Learn
Description: Learning effective strategies to succeed through online individualized assessment, positive attitude development, habit change, development and self-efficacy and self-regulation. Learning tools include goal setting, developing information skills, questioning, transformational learning, presentation and information use skills. Analyzing class materials, problem solving, creativity, teacher analysis, reflection, developing classroom motivation and appropriate classroom behavior to lead to classroom success.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 1013 Emotional Skills in Learning Success
Description: Striving for academic excellence through self awareness and growth in areas of social and emotional development. Interpersonal and intrapersonal skills, leadership skills, and self-management skills in the context of emotional intelligence theories.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 2513 Foundations of Ethical Leadership
Prerequisites: 24 hours in good standing; admission into the UGLC or consent of instructor.
Description: Introduces students to a variety of theoretical views of ethics and leadership studies through the identification of contemporary ethical challenges and the development of foundational leadership skills to meet those challenges. Same course as HESA 2513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 3063 Critical Thinking, Problem Solving, and Creative Processes
Description: Learning theory in developing strategies for promoting critical thinking, problem solving, and creativity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 3110 Educational Psychology Seminar
Description: Problems, trends, contemporary topics, and pertinent issues in educational psychology. Concentrated study of selected areas not usually addressed in the undergraduate curriculum. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EPSY 3113 Psychological Foundations of Childhood
Description: The child from conception to puberty with focus on educational implications of development in cognitive, affective and psychomotor domains. Previously offered as ABSE 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 3213 Psychology of Adolescence
Description: The adolescent from pubescence to adulthood with focus on educational implications of development in cognitive, affective and psychomotor domain. Course previously offered as ABSE 3213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 3413 Child and Adolescent Development
Description: The person from conception through adolescence with focus on education implications of development in cognitive, affective, social, and physical domains. Course previously offered as ABSE 3413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 3533 Motivating Learners
Description: Current practices in learner motivation, school age through adult. Developing positive attitudes and building community in classrooms to stimulate motivation of all learners.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 4063 Exploration of the Creative Experience
Description: The creative experience in art (visual to performing), articulation (oratory to literature), thought (philosophy to psychology), business (practices to products), leisure (procreation to recreation). Western and Eastern viewpoints. Personal creative development fostered by modeling and by investigation of proven techniques. A wide range of creative endeavor with an experiential approach. Future-oriented applications. Course previously offered as ABSE 4063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 4223 Psychological Foundations of Learning and Instruction
Description: Instructional psychology focusing on the study of teaching and learning theory as part of an instructional program to deal with individual, cultural, and environmental differences. Case studies and group discussion emphasizing motivation, planning, evaluation, classroom problems and management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 4503 Ethical Leadership for the Common Good
Prerequisites: EPSY 2513 or HESA 2513.
Description: Builds on foundational model of ethical theory and leadership studies through application of ethical theory and leadership skills to specific contexts and evaluation of their results. Same course as HESA 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 4533 Competency Motivation
Description: Development of competence through the application of research strategies in achievement motivation. Examines intellectual ability, motives, goals, attributions, competence perceptions and values as they relate to developmental issues, demographics, contextual influences, culture, and self-regulation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 4743 Learning, Motivation, and Social Justice (G)
Description: Foundational principles of learning, motivation, and global identity; critical analysis of contemporary cultures; and application of learning in addressing global issues of social justice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation
General Education and other Course Attributes: International Dimension

EPSY 5000 Master's Thesis
Prerequisites: Consent of advisory committee chairperson.
Description: Report of research conducted by a student in the master's program in school and educational psychology. Credit given and grade assigned upon completion and acceptance of the thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EPSY 5001 Colloquium: Educational Psychology
Description: Discussion of issues related to graduate study in educational psychology and related fields.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Educ Found Leadersh & Aviation

EPSY 5103 Human Development in Psychology
Description: Introduction to basic research and theories of cognitive, emotional and social development. Applications to educational and family settings. Course previously offered as ABSE 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5123 Academic Writing in the Learning Sciences
Description: Introduction to the structure and organization of academic writing appropriate for a Creative Component, project, thesis, or doctoral dissertation. Students will be expected to prepare a proposal for their special topic.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5320 Seminar in Educational Psychology
Description: In-depth exploration of contemporary topics in educational psychology. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Contact: 3-9 Other: 3-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EPSY 5403 Issues in Adolescent Development
Description: Current issues in adolescent development in an educational context and culture, including self, family, peers, school and work relationships. Gender differences within culture, race and class examined. Current dilemmas explored using critical theory and action research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5463 Psychology of Learning
Description: Evaluation of, and application to, education, psychology, and other learning contexts of research-based, contemporary psychological theories of human learning. Course previously offered as ABSE 5463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5473 Psychology of Adult Learning
Description: Analysis of the psychological foundation of adult learning both in and out of learning programs across the lifespan. Differentiates among adults of all ages in terms of practice and performance in a variety of settings, including classroom, community, and work environments. Examines the intellectual, social, cultural, emotional, motivational, and performance components of the psychology of adult learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5553 Motivation in Educational Contexts
Description: An overview of empirically informed theories of motivation from a psychological perspective with emphasis on contextual influences in and outside the classroom. Topics include beliefs about ability and intelligence, goals, casual attributions, the value of academic tasks, and psychological needs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5603 Developmental Issues in Instruction
Prerequisites: Three hours in developmental psychology, educational psychology or consent of instructor.
Description: Developmental issues in instruction at all levels from early childhood through adulthood. Specific impacts of developmental stages on the acquisition and retention of cognitive, affective and psychomotor development at various levels and contexts will be examined and applications to instruction will be provided.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5663 Creativity for Teachers
Description: Theoretical origins of creativity and their concomitant applications in the learning environment. Blocks to creative thinking, imagination, imagery, creativity testing, developing ideas and innovations, creative problem solving and teaching techniques and methods to maximize creative potential in all kinds and types of students. Course previously offered as ABSE 5663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5713 Transpersonal Human Development
Description: Human development in terms of individual consciousness, focusing on the implications of such extraordinary states of consciousness as those associated with hallucinogenic drugs and mystical religious experience. Integration of psychological and religious interpretations of development. Applications to practical problems in education and psychology. Course previously offered as ABSE 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5720 Educational and School Psychology Workshop
Description: Workshop on various topics related to educational and school psychology. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EPSY 5773 Individual Intellectual Assessment
Description: Intensive study of various intelligence and achievement batteries, including the Wechsler scales and the Woodcock Johnson Tests of Achievement. Emphasis and practice in administration, scoring, interpretation. Further emphasis on issues related to report writing, non-discriminatory assessment, and the history of intelligence testing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5963 Developing Resources to Support Educational Programs
Description: Development, management and evaluation of programs in intra- and extra-class settings. Program types include parent, volunteer, mentor, tutor, group sponsors in technology, business involvement, curricular enhancement and service learning. Developing community and business interest through public relations, financial development, grantsmanship or resource information sources. Developing Internet resources to support learners. Course previously offered as EPSY 5962.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 5983 Instructional Effectiveness in Higher Education
Prerequisites: Graduate standing or consent of instructor.
Description: For teaching assistants in all areas. The many aspects of teaching in higher education. Both theory, e.g., traditional instructional design and practical applications, e.g., how to create a lecture. Issues related to instructional design, development of classroom climate, understanding and assessment of students, classroom practices, materials creation for teaching and development of support systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 6000 Doctoral Dissertation
Prerequisites: Consent of advisory committee chairperson.
Description: Report of research conducted by a student in the doctoral program in educational school psychology. Credit given and grade assigned upon completion and acceptance of the doctoral thesis. Offered for variable credit, 1-25 credit hours, maximum of 25 credit hours.
Credit hours: 1-25
Contact hours: Contact: 1-25 Other: 1-25
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EPSY 6001 Colloquium II: The Job Search in Educational Psychology and Related Fields
Description: Discussion of issues related to the job search process in educational psychology and related fields.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Educ Found Leadersh & Aviation

EPSY 6043 Adult Development
Description: Theory and research concerning human development during the adult years. Practical applications for serving adult populations in education and education-related settings. Course previously offered as ABSE 6043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 6110 Seminar in School Psychology
Description: An assessment of psychological techniques applied to problems encountered in the internship. Course previously offered as ABSE 6110. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EPSY 6153 Advanced Research in Educational Psychology
Description: Research in educational psychology in areas such as recent trends in the field, exploration of research designs in Educational Psychology, writing and dissemination of research, ethics and collaboration, and development of skills to be competent consumers of the literature.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 6163 Emotion and Cognition
Description: The relationship between emotion and cognition as it relates to knowing and learning. History, theoretical frameworks, and current empirical research on the interdependence of affect and cognition, the effects of mood on memory, and the affective and cognitive bases of behavior. Exploration of potential research. Course previously offered as ABSE 6163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 6213 Advanced Educational Psychology
Prerequisites: Three hours in developmental psychology or consent of instructor.
Description: Learning and its effect upon coping and adjustment. How learning, environmental and personality factors interact to change human behavior. Course previously offered as EPSY 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 6323 Psychological Consultation
Prerequisites: Admission to graduate program in the SAHEP or psychology program.
Description: Models and strategies for the delivery of special services in the schools and other agencies that focus on serving the mental health needs of children, adolescents and adults. The use of consultation as a problem solving alternative to the assessment/label approach. Same course as CPSY 6323, students can receive credit in only one of the courses. Course previously offered as ABSE 6323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 6443 Theories and Problems in Educational Psychology
Prerequisites: Admission to the doctoral program in educational psychology or consent of instructor.
Description: Theoretical foundations and nature of the problems studied in educational psychology; current issues and historical overview.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 6460 Teaching Internship in Educational Psychology
Prerequisites: Consent of instructor.
Description: Teaching internship in educational psychology under the supervision of faculty. May be repeated for credit when work assignment varies. Previously offered as ABSE 6460. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EPSY 6533 Human Motivation
Description: A theoretically-oriented approach to the concept of motivation; essential precursors to human behavior and applications to the solution of real and hypothetical problems. Course previously offered as ABSE 6533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EPSY 6850 Directed Readings in Educational and School Psychology
Prerequisites: Consent of instructor.
Description: Directed reading for students with advanced graduate standing in educational and school psychology. Course previously offered as ABSE 6850. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EPSY 6880 Research Internship in Educational Psychology
Prerequisites: Admission to advanced graduate program and consent of area coordinator.
Description: Directed off-campus research experiences in educational psychology. Course previously offered as ABSE 6880. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

Educational Technology (EDTC)

EDTC 3123 Applications of Educational Technologies
Description: Introduction to the design and development of instruction using educational media and technology in the PK-12 classroom. Materials development, contemporary applications of computers and other electronic systems to instruction. Integration of instructional design, instructional media, and instructional computing. May not be used for degree credit with EDTC 4113. Previously offered as CIED 3122.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 4103 Advanced Computing Applications in Education
Description: In-depth exploration of advanced technology use in teaching and learning environments. Examination of current issues of technology use in instructional settings. May not be used for degree credit with EDTC 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 4110 Special Topics in Educational Technology
Description: Exploration of contemporary problems or issues in educational technology. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 4113 Applications of Media and Technology
Description: Introduction to the application of media and technology to formal and informal learning situations. Intended for non-professional education majors. May not be used for degree credit with EDTC 3123. Previously offered as CIED 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 4223 Introduction to Assistive Technologies
Description: Introduction to assistive technologies and the application of assistive technologies in formal and informal learning environments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 4503 Facilitating Online Learning
Description: Students will apply knowledge of pedagogy, instructional design, learning theory, standards for online teaching, online community building and teaching with technology by developing a proposal for an online course in an area of their choosing. May not be used for degree credit with EDTC 5503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 4753 Introduction to Instructional Design
Description: Introduction to the systematic design of instruction. Topics covered: Analysis, design, development, implementation, and evaluation of instructional materials in a variety of educational settings. Current research, trends and issues in instructional design will be addressed. May not be used for degree credit with EDTC 5753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 4773 Instructional Systems Project Management
Description: Explore essential elements of successful instructional systems project management by defining a project, identifying essential components, developing the project schedule and budget, and managing project quality and risks. Produce complete design documents for an instructional system, including budget, justification, implementation schedule, and evaluation plan.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5000 Master's Report or Thesis
Prerequisites: Consent of instructor.
Description: Students studying for a master's degree enroll in this course for a total of 2 credit hours if they write a report or 6 hours if they write a thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDTC 5053 Learning in a Digital Age
Description: Foundational understanding of digital learning including history, definitions, common assumptions, cultural competence, ethical issues, standards, methods, and models to maximize digital learners' experience in educational and corporate settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5103 Advanced Computing Applications in Education
Description: In-depth exploration of advanced technology use in teaching and learning environments. Examination of current issues of technology use in instructional settings. Previously offered as CIED 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5113 Digital Media Production for Instruction
Description: Introduction to the production of digital media for instruction. Topics covered: Instructional design for digital media, message design, use of graphics, multimedia development tools. Current research, trends, tools and issues in media production will also be addressed. Previously offered as CIED 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5123 Academic Writing in the Learning Sciences
Description: Introduction to the structure and organization of academic writing appropriate for a Creative Component, project, thesis, or doctoral dissertation. Students will be expected to prepare a proposal for their special topic.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5153 Computer-Based Instruction Development
Description: Examinations of curriculum strategies, related research issues, and techniques for developing computer-based instruction. Students will develop and evaluate computer-based instruction with case studies. Previously offered as CIED 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5203 Foundations of Educational Technologies
Description: A general introduction to the field of Educational Technology. Define, describe, and critically evaluate the foundations, issues and careers in educational technology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5303 Digital Games and Simulations in the Classroom
Description: Introduces students to the philosophies, theories, processes, and practices of integrating digital games and simulations into the classroom.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5403 Creativity and Innovation in Educational Technology
Description: In-depth examination of a variety of innovation technologies and engagement in pedagogies and technologies associated with creativity, innovation and invention.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5503 Facilitating Online Learning
Description: Apply knowledge of pedagogy, standards for online teaching, online community building, and teaching with technology to design and facilitate online learning environments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5703 Advanced Virtual and Augmented Reality for Social Change
Description: Explores evidence-based design/research informed design through the use and application of Virtual Reality (VR) and Augmented Reality (AR) technology using a multidisciplinary approach to solve current societal problems by applying social science practices with innovative technology. Learn how to develop and apply 3D content in VR/AR. Turn your creative ideas into useful applications. This course is open to all graduate students. No prior coding or design experience is required. Same course as DM 5083.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Educ Found Leadersh & Aviation

EDTC 5720 Educ Workshop
Description: For teachers, principals, superintendents and supervisors who have definite problems in instruction or administration. Students must register for the full number of credit hours for which the workshop is scheduled for a particular term. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDTC 5753 Introduction to Instructional Design
Description: Introduction to the systematic design of instruction. Topics covered: Analysis, design, development, implementation, and evaluation of instructional materials in a variety of educational settings. Current research, trends and issues in instructional design will be addressed. Previously offered as CIED 5753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5763 Introduction to Assistive Technology
Description: Introduction to assistive technologies and the application of assistive technologies to formal and informal situations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5773 Instructional Systems Management
Description: Principles of management relevant to instructional systems, including, but not limited to: project, resource, quality, change, financial, information technology, human resource, program evaluation, product, knowledge and performance management. Previously offered as CIED 5773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5783 Learning and Teaching with Mobile Devices
Description: Exploring the potential of learning with mobile devices in formal education settings and factors to consider when designing an effective and innovative mobile learning environment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5793 Design-Based Research
Description: Design-Based Research seeks to contribute to theory-building about learning and the design of learning environments. Course provides an examination of the history of this research approach along with related current literature, commentary and research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 5850 Directed Study
Prerequisites: Consent of instructor.
Description: Directed study for master's level students. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDTC 6000 Doctoral Dissertation
Description: Required of all candidates to the Doctor of Education degree. Credit is given upon completion of the thesis. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation
Additional Fees: CEHS SEFLA Travel Crse Tuition fee of $485.55 per credit hour applies.

EDTC 6153 Advanced Computer-Based Instructional Development
Prerequisites: EDTC 5153 or consent of instructor.
Description: Design of user-friendly instructional interfaces and computer-based learning management systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 6283 Performance Improvement Technology
Description: Overview of performance improvement, as defined within the field of Educational Technology. Training and non-training interventions to improve performance in learning situations. Sample topics may include needs assessment, motivation systems, compensation systems, job aids, or electronic performance support systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 6333 Human Computer Interaction
Prerequisites: EDTC 5153 or consent of instructor.
Description: Human cognitive architecture, information processing, and design of effective educational, computer-based interfaces.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 6423 Trends and Issues in Educational Technology
Description: Selected problems, issues and trends in educational technology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 6553 Media and Learning in Educational Technology
Description: Exploration of topics from media studies relevant to educational technology, especially online learning. Reading of classic works in media studies in tandem with related contemporary works addressing new developments in educational technology, online learning, online gaming, and social media for learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 6613 Instructional Systems Design
Description: Overview of theoretical foundations of the systematic design of instruction and their applications in design practice including analyzing, defining, sequencing, developing, and validating instructional components. Current research, theory, and future directions in design theory and practice will be addressed. Course previously offered as EPSY 6613 and ABSE 6613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 6713 Introduction to Learning Sciences
Description: Introduction to the Learning Sciences and its theoretical frameworks, research methods, and current scholarly issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 6793 Advanced Design-Based Research
Description: Exploration of current DBR literature, research and research implementations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

EDTC 6850 Directed Reading
Prerequisites: Consent of instructor.
Description: Directed reading for students with advanced graduate standing to enhance students' understanding in areas where they wish additional knowledge. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDTC 6880 Internship in Education
Prerequisites: Consent of instructor.
Description: Directed off campus experiences designed to relate ideas and concepts to problems encountered in the management of the school program. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

EDTC 6910 Practicum
Prerequisites: Consent of instructor.
Description: Helps the student carry out an acceptable research problem (practicum) in a local school situation. Credit given upon completion of the written report. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

Electr & Computer Engineering (ECEN)

ECEN 2011 Experimental Methods I
Prerequisites: PHYS 2114 with a "C" or better or concurrent enrollment advisor permission required.
Description: Laboratory associated with ECEN 2714 taken mostly by transfer students who have completed a similar course as ECEN 2714 without the accompanying laboratory. Previously offered as ECEN 3013.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 2233 Fundamentals of Digital Logic Design
Prerequisites: (MATH 1813 with a grade of "C" or better or concurrent enrollment in MATH 1813) or (MATH 2144 with a grade of "C" or better or concurrent enrollment in MATH 2144) or MATH 2153 with a grade of "C" or better.
Description: Introduction to digital logic, logic building blocks, Boolean algebra, two-level realization of logic functions, Karnaugh maps (K-maps) and the Quine-McCluskey method/Heuristics for minimizing the complexity of logic circuits, programmable logic with FPGAs, complex logic building blocks, Finite State Machines (FSMs), FSM design methodology, digital system design, algorithmic design in digital systems, control/datapath partitioning, FSM optimizations, and clocking methodologies. May not be used for degree credit with ECEN 3233.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 2714 Fundamentals of Electric Circuits
Prerequisites: MATH 2153 with a grade of "C" or better and (PHYS 2114 and MATH 2233 with a grade of "C" or better or concurrent enrollment in PHYS 2114 and MATH 2233).
Description: Circuit analysis techniques including equivalent networks and mesh/node formulation of network equations; operational amplifiers; RL, RC and RLC transient and steady-state circuit analysis; energy and power; electrical measurements and instrumentation.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 3020 Supervised Research Project
Prerequisites: Consent of instructor and ECEN department head.
Description: Supervised research project for qualified students. May be repeated no more than three times for a total of three credit hours. Offered for 1-hour fixed credit, maximum of 3 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 3113 Energy, Environment and Economics
Prerequisites: ECEN 3714 with a "C" or better.
Description: Topics relevant to understanding the close relationship between energy use, its impact on the environment, and overall economic implications. Green energy technologies (wind, solar, hydro) will be considered along with conventional techniques. Both conventional and non-conventional energy technologies will be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 3213 Computer Based Systems in Engineering
Prerequisites: ECEN 2714 and ECEN 2233 and (CS 2433 or CS 2133 or ENGR 1412 or EET 1103), all with a "C" or better.
Description: A comprehensive introduction to technology and applications of microcontrollers/microprocessors in solving engineering problems. Topics include computer principle, computer hardware/software, programming, IO interfacing, communication, memory, data acquisition, data representation, and numerical analysis. Previously offered as ENSC 3213.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 3314 Electronic Devices and Applications
Prerequisites: ECEN 3714 with a grade of "C" or better and ENSC 2611 with a grade of "C" or better.
Description: Semiconductor electronic components including MOSFETs, BJTs, JFETs, and OpAmps. Emphasis on device models and use of solid state electronic devices to analyze, synthesize and design amplifiers and switching circuits. SPICE simulations are extensively utilized. Basic building blocks for analog and digital applications. Theoretical concepts and methods are demonstrated and reinforced through laboratory exercises. Course previously offered as ECEN 3313.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 3513 Signal Analysis
Prerequisites: ECEN 3714 with a "C" or better.
Description: Deterministic signals. Fourier series and Fourier transforms. Impulse response, convolution and correlation. Sampling theorem. Analog modulation techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 3613 Applied Fields and Waves I
Prerequisites: MATH 2163 and ECEN 3714 with a "C" or better.
Description: Circuit model of transmission lines, wave propagation, energy transfer, impedance mismatch, and transients. Field analysis of voltage, current, resistance, capacitance, and inductance. Coupled circuits.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 3623 Applied Fields and Waves II
Prerequisites: ECEN 3613.
Description: Continuation of ECEN 3613. Plane-wave propagation in free space, power flow, reflection and transmission. Guided waves and resonators. Radiation and introduction to antenna systems. Boundary value problem analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 3714 Network Analysis
Prerequisites: MATH 2233 and PHYS 2114 and (ECEN 2714 or (both ENSC 2613 and ENSC 2411) or (both ENSC 2613 and ECEN 2011)) with a grade of "C" or better.
Description: Advanced mathematical analysis techniques used in circuit analysis including Laplace transforms, Fourier transforms, and Fourier series. Circuit frequency response, Bode plots, and filters, including passive, active, low-pass, high-pass, and band-pass filters. Theory of linear circuits; two-port circuit models and parameters. Course previously offered as ECEN 3713.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 3723 Systems I
Prerequisites: ECEN 3714 and ENSC 2113 with a "C" or better and (MATH 3013 with a "C" or better or concurrent enrollment).
Description: Physical and mathematical modeling of electrical and mechanical dynamic systems. Transient response of first and second order systems. Laplace transform techniques for solving differential equations, transfer functions, frequency response and resonance. Course previously offered as ECEN 3413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 3903 Introduction to Semiconductor Devices
Prerequisites: ECEN 3714 with a grade of "C" or better.
Description: Crystal structure, the quantum theory of solids. The physics of semiconductor materials and the projunction, with an emphasis on applications to semiconductor devices. Same course as PHYS 3313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 3913 Solid State Electronic Devices
Prerequisites: ECEN 3714 with a "C" or better and (PHYS 3313 or ECEN 3903 with a "C" or better).
Description: Solid state physics basis of modern electronic devices. Introductory quantum mechanics. Energy bands in solids. Electronic properties of semiconductors. Junction diodes. Bipolar transistors. Field effect transistor.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4010 Special Topics
Prerequisites: (ECEN 3213 or ENSC 3213), (ECEN 2233 or ECEN 3233), and ECEN 3714, all with a "C" or better or advisor permission.
Description: Engineering topics not normally included in existing courses. Repeat credit may be earned with different course subtitles assigned. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 4013 Design of Engineering Systems
Prerequisites: (ECEN 3213 or ENSC 3213), (ECEN 2233 or ECEN 3233), and ECEN 3714, all with a grade of "C" or better, and ECEN 3613, ECEN 3513, ECEN 3314 and (ENGL 3323 with a grade of "C" or better or concurrent enrollment).
Description: Complete design cycle for several small design projects, each including establishing objectives, synthesis, analysis, construction, testing and evaluation. Use of modern lab equipment and fabrication techniques. Development of communication skills.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 4024 Capstone Design
Prerequisites: ECEN 4013 and ECEN 4503.
Description: Continuation of ECEN 4013. Student project teams design, build, test and present results for realistic projects from university and industrial sponsors. Formulation of specifications, consideration of alternative solutions, feasibility considerations, detailed system descriptions, economic factors, safety, reliability, aesthetics, ethics and social impact. Course previously offered as ECEN 4023.
Credit hours: 4
Contact hours: Lab: 8 Contact: 8
Levels: Undergraduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 4030 Undergraduate Professional Practice
Prerequisites: Department Permission Required.
Description: Experience in application of electrical engineering principles to typical problems encountered in industry. Solutions to the problems by student participation in the role of engineer or engineering intern. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 4133 Power Electronics
Prerequisites: ECEN 3714 with a grade of "C" or better.
Description: Power electronic devices, components, and their characteristics; DC to AC conversion; fundamentals of inverters and waveshaping devices; application aspects; control aspects; characteristics and state-of-the-art of advanced power inverter and power conditioning topologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4153 Power System Analysis and Design
Prerequisites: ECEN 3714, "C" or better.
Description: Power system component models from circuit theory. Formulation and design of the load flow model and the optimum economic generator allocation problem utilizing computer methods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4173 Power System Operation and Intelligence
Prerequisites: ECEN 4153
Description: Continuation of ECEN 4153 focusing on fault analysis and comprehensive static operating scenarios and functionalities. Covers nomenclature and layout of generation and power delivery. Focus of the course is on electrical faults and contingency calculations, economic operation of large-scale generation and transmission systems. Fast-decoupled power flow, economic load dispatch, optimal power flow, and voltage regulation are presented. Special emphasis is placed on computer-based, machine learning, and AI methods to solve power-system problems. May not be used for degree credit with ECEN 5173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4213 Embedded Computer Systems Design
Prerequisites: (ECEN 3213 or ENSC 3213), (ECEN 2233 or ECEN 3233) and ECEN 3714, all with a grade of "C" or better.
Description: Design of microcontroller/microprocessor-based systems through proper integration of hardware and software. Topics include development process and methodology, sensor interfacing, motor control, networking and wireless communication, embedded operating systems, and Internet of Things (IoT).
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 4223 Mobile Robotics
Prerequisites: ECEN 3213 and ECEN 3714, both with a grade of "C" or better.
Description: This electrical and computer engineering course introduces the fundamentals of mobile robots to both undergraduate and graduate students. Mobile robots are integrated mechanical, electrical and computational systems functioning in the physical world. Topics include design, locomotion, perception, control, localization and mapping, path planning, and more. Advanced topics will also be discussed. This course aims to provide theoretical and practical experiences to students through both lectures and projects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4233 High Speed Computer Arithmetic
Prerequisites: (ECEN 3213 or ENSC 3213), (ECEN 2233 or ECEN 3233), and ECEN 3714, all with a grade of "C" or better.
Description: Course covers computer arithmetic as applied to general purpose and application-specific processors. Focus is on developing high-speed arithmetic algorithms and understanding their implementation in VLSI technology at the gate level.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4243 Computer Architecture
Prerequisites: (ECEN 3213 or ENSC 3213), (ECEN 2233 or ECEN 3233), and ECEN 3714, all with a grade of "C" or better.
Description: Functional organization and hardware design of digital computer systems with emphasis on microprocessor-based systems. CPU organization, features of microprocessors including advanced 32-bit CPU's, memory system design including cache, virtual memory, error detection and correction, I/O operations, including direct memory access and peripheral interface design.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 4273 Software Engineering
Prerequisites: (ECEN 3213 or ENSC 3213), (ECEN 2233 or ECEN 3233), and ECEN 3714, all with a grade of "C" or better.
Description: Covers core principles of the software life cycle, process modeling, and agile methodologies. Emphasizes tools and techniques for developing and maintaining large-scale software systems, including CI/CD and DevOps practices. Topics also include software modeling, metrics, quality assurance, security, configuration management, and design patterns. Same course as CS 4273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4283 Computer Networks
Prerequisites: (ECEN 3213 or ENSC 3213), (ECEN 2233 or ECEN 3233), and ECEN 3714, all with a grade of "C" or better.
Description: Computer networks, distributed systems and their systematic design. Introduction to the use, structure, and architecture of computer networks. Networking experiments to describe network topology. ISO reference model. Same course as CS 4283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4293 Applied Numerical Methods for Python for Electrical Engineers
Prerequisites: ECEN 3714, ECEN 2233, and ECEN 3213 all with a grade of "C" or better.
Description: Introduction to numerical linear algebra and related numerical methods. Topics include direct and iterative methods for linear systems, eigenvalue decompositions and QR/SVD factorizations, stability and accuracy of numerical algorithms, the IEEE floating-point standard, sparse and structured matrices, and an introduction to machine learning/AI and linear algebra software. Other topics include nonlinear optimization, numerical integration and differentiation, FFTs, and sensitivity analysis. Problem sets will involve heavy use of the Python environment. No prior experience required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4303 Digital Integrated Circuit Design
Prerequisites: ECEN 3314 and (ECEN 2233 or ECEN 3233 with a "C" or better).
Description: Theory of digital and electronics circuits. Digital logic families TTL, IIL, ECL, NMOS, CMOS, GaAs. Large signal models for transistors. Implementation at RAM and ROM. Circuit design for LSI and VLSI.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4313 Linear Electronics Circuit Design
Prerequisites: ECEN 3314.
Description: Overview of semiconductor device physics (MOSFETs and BJTs) and integrated-circuit design environment. Building blocks for analog systems (differential amplifiers, operational amplifiers, output stages, and voltage references). Understanding of frequency response (Bode plot, transfer function, pole-zero analysis, feedback, and stability). Extensive SPICE-based design for performance optimization and design tradeoffs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4353 Communication Electronics
Prerequisites: ECEN 3314.
Description: Introduction to radio-frequency (RF) communication systems with a primary focus on transistor- and circuit-level analysis. Investigations of RF system properties (noise, linearity, and matching) modulation schemes, and transceiver architectures. Operation principles and basic design of low-noise amplifiers, mixers, power amplifiers, and oscillators.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4413 Automatic Control Systems
Prerequisites: ECEN 3723 or (MAE 3723 or MAE 3724).
Description: Properties of feedback control systems, mathematical models of basic components, state-variable models of feedback systems, time-domain analysis, stability, transform analysis, frequency domain techniques, root-locus design of single input single output systems and simple compensation techniques. Same course as MAE 4053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4493 Artificial Intelligence in Engineering
Prerequisites: ECEN 3714 with a "C" or better.
Description: Elementary concepts of artificial intelligence and its applications in engineering, including but not limited to automation, manufacturing, computer vision, robotics and mechatronics. Emphasis is on deep neural network architectures and learning algorithms along with topics related to machine learning, computer vision and data analytics. Online computer programs, such as Python and AI Libraries, collated from open-source repositories will be given along with hands-on experience.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4503 Applications of Probability and Statistics to Random Signals
Prerequisites: ECEN 3513.
Description: Concepts of probability, statistics, and random variables necessary for study of signals and systems involving uncertainty and randomness. Applications of probability and statistics to practical problems in electrical and computer engineering including communications, signal processing, image processing, and control systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4523 Communication Theory
Prerequisites: Currently enrolled in ECEN 4503 or have taken ECEN 4503 or both ECEN 3513 and STAT 4033.
Description: Noise in modulation systems. Digital data transmission. Design of optimal receivers. Introduction to information theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4533 Data Communications
Prerequisites: (ECEN 4503 prerequisite or concurrent enrollment) or (ECEN 3513 and STAT 4033).
Description: Signal detection in noise. Tradeoffs between bandwidth signal-to-noise ratio and rate of information transfer. Transmission multiplexing and error handling. Elements of computer network design. Data link protocols.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4613 Microwave Engineering
Prerequisites: ECEN 3613.
Description: Review of EM and transmission line theory. Microwave network theory: Impedance and admittance matrices, scattering matrix and S-parameters, ABCD and transfer matrices. Signal-flow diagrams. Matching circuits and microwave filters. Passive microwave devices: power dividers, hybrids, couplers, resonators, isolators, and circulators. Class projects such as radar, communication, imaging, or sensing systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4633 Antenna Theory
Prerequisites: ECEN 3613
Description: This course is designed to be an accessible introduction to antenna theory appropriate for undergraduate students. Topics covered in the course include the following: Fundamental antenna parameters, including directivity, efficiency, radiation resistance, and pattern. Analysis of dipole, loop, aperture, broad-band, and traveling wave antennas. Array theory. Introduction to numerical techniques used in modern antenna design. May not be used for degree credit with ECEN 5623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4663 Modern Antennas: From Theory to Design
Prerequisites: ECEN 3613
Description: Combines fundamentals, CAD modeling, and hands-on implementation. Students will use industry-standard EM tools for designing antennas and arrays for real-world applications in radar, space, and next-generation wireless communication systems, including 5G/6G. Students will learn to use state-of-the-art EM tools, design antennas and RF components, and then fabricate and test them. This complete cycle from theory to implementation equips students with essential skills highly sought after in the RF and microwave industries. This course may not be used for degree credit with ECEN 5663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4743 Introduction to Biomedical Engineering Modeling and Systems
Prerequisites: ECEN 3513.
Description: An overview of the field of biomedical engineering and an introduction of the modeling approaches implemented in biomedical engineering. Topics include bio-electronics, biomechanics, compartmental modeling, bio-signal processing, biomedical optics, etc. The course will demonstrate a few of major fields of activity in which biomedical engineers are engaged and modeling approaches are implemented.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4763 Introduction to Digital Signal Processing
Prerequisites: ECEN 3513.
Description: Introduction to discrete linear systems using difference equations and z-transforms. Discrete Fourier analysis. Design of digital filters. Sampling theorem. Applications of digital signal processing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4773 Real Time Digital Signal Processing
Prerequisites: ECEN 4763.
Description: DSP Processor architectures and programming. A/D, D/A, polled and interrupt-driven I/O. Realtime implementation of FIR/IIR filters, the FFT, and other DSP algorithms on special purpose DSP hardware from Motorola, Texas Instruments and others. Link between DSP theory and practical implementation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 4823 Design of Optical Systems
Prerequisites: ECEN 3714 with a "C" or better.
Description: Introduction to optics through the design, construction, and characterization of optical systems. Emphasis on geometrical optics and spectroscopy. Course previously offered as ECEN 3813.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 4843 Design of Lasers and Systems
Prerequisites: ECEN 3714
Description: Introduction of the design of lasers and optical systems based on lasers including the design, construction, and characterization of lasers. Gaussian beams and optics, laser gain materials, laser cavities, advanced topics. Course previously offered as ECEN 4813.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Elec & Computer Engr

ECEN 5000 Thesis
Description: A student studying for the master's degree will enroll in this course for a maximum of six credit hours. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 5030 Professional Practice
Prerequisites: Department Permission Required.
Description: Experience in application of electrical engineering principles to typical problems encountered in industry and government engineering design and development projects. Solutions to the problems require participation by the student in the role of junior engineer or engineer-intern. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 5060 Special Topics
Prerequisites: Advisor permission.
Description: Engineering topics not normally included in existing courses. Repeat credit may be earned with different course subtitles assigned. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 5070 Directed Studies
Prerequisites: Consent of instructor.
Description: Investigation outside of the classroom of topics not normally covered in lecture courses. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 5080 Fundamental Topics
Prerequisites: Advisor permission.
Description: Fundamental topics that are typically introduced in the senior year curriculum with additional depth and breadth commensurate with the graduate program. Repeat credit may be earned with difference course subtitles assigned. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5113 Power Systems Analysis by Computer Methods
Prerequisites: ECEN 4153 or Departmental Permission.
Description: Quasi-static control of power systems and analysis of power systems under abnormal operating conditions. Transient stability studies. Models formulated and solutions outlined for implementation on the computer.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5123 Engineering Systems Reliability Evaluation
Prerequisites: ECEN 4503 or Departmental Permission.
Description: Techniques and concepts needed for evaluating the long-term and short-term reliability of a system. Topics include static and spinning generation capacity; transmission, composite, interconnected, and dc system reliability evaluations; and power system security. Applications to systems other than power systems included. For students with little or no background in probability or statistics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5133 Power Electronics and Renewables
Prerequisites: ECEN 3314 or Departmental Permission.
Description: Modeling and control aspects of power electronics for integrating renewable energy systems. Topics covered here will focus on power converter dynamics, indirect converter topologies, PWM technique, sliding mode control of converters, game theory based control, Maximum power point tracking, control of generators for different renewable energy systems. Simulation tools will be discussed as appropriate.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5153 Direct Energy Conversion
Prerequisites: Departmental Permission.
Description: Energy conversion techniques and applications; thermo-electrics, thermionics, fuel cells, MHD and other processes involving electrical, mechanical and thermal energies. State-of-the-art developments in direct energy conversion using selected papers from journals and other publications. Gives the student a proper perspective of the possibilities and problems associated with satisfying future energy requirements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5163 Cyber Physical Systems and Smart Grid
Prerequisites: ECEN 4503 or Departmental Permission.
Description: A comprehensive overview of advanced cyber-physical technologies and ideas that make the power grid smart. Topics covered include: basics of electric power systems; fundamentals of smart grids; the role of measurement, communications and monitoring technologies in smart grids; integrated applications of control and information advancements in a smart grid; Distributed Energy Resources (DERs) including renewable energy resources, energy storage systems, electric vehicles, and demand response; various functions and tools for managing smart grids; and interoperability, standards, and cyber security in smart grids.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5173 Power System Operation and Intelligence
Prerequisites: ECEN 4153
Description: Graduate-level continuation of ECEN 4153 focusing on fault analysis and comprehensive static operating scenarios and functionalities. Covers nomenclature and layout of generation and power delivery. Focuses on electrical faults and contingency calculations, economic operation of large-scale generation and transmission systems. Fast-decoupled power flow, economic load dispatch, optimal power flow, and voltage regulation are presented. Special emphasis is placed on computer-based, machine learning, and AI methods to solve power-system problems. May not be used for degree credit with ECEN 4173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5193 Power Economics and Regulation
Prerequisites: ECEN 3113 or Departmental Permission.
Description: Natural monopoly, regulated mono-polities. Power pricing. Deregulation and the Energy Policy Act of 1992. Bulk power markets, transmission access and wheeling. Economic dispatch and system operations. Security and reliability. Environmental externalities and Clean Air Act compliance. Procurement of new capacity and integrated resource planning. Co-generators and independent power producers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5223 Digital Systems Testing
Prerequisites: Departmental Permission.
Description: Testing of combinational and sequential circuits. Test generation techniques. Design of reliable and testable circuits and systems. Testing for LSI and VLSI.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5233 Embedded Sensor Networks
Prerequisites: Departmental Permission.
Description: Analysis and design of wireless networks, including the integration of sensing, computation, and wireless communication within an embedded system. Mobile sensor networks and body sensor networks. Real world application and new innovations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5243 Advanced Mobile Robotics
Prerequisites: ECEN 3213 and ECEN 3714 and experience in high level language programming, or permission from instructor.
Description: Mobile robots are integrated mechanical, electrical, and computational systems functioning in the physical world which have a wide variety of applications. This course introduces graduate students to both fundamental and advanced topics, including robot design, locomotion and kinematics, perception, control, localization and mapping, path planning, etc. Advanced topics like multi-robot coordination, human-robot interaction and AI in mobile robots will also be discussed. This course aims to provide both theoretical and practical experience to students through lectures and projects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5253 Digital Computer Design
Prerequisites: ECEN 4233 or ECEN 4243 or Departmental Permission.
Description: Arithmetic algorithms and the design of the arithmetic/logic unit (ALU). Serial and parallel data processing; control and timing systems; microprogramming; memory organization alternatives; input/output interfaces. Same course as CS 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5263 VLSI Digital Systems Design
Prerequisites: ECEN 4303 or Departmental Permission.
Description: Design of very large-scale digital systems on a single chip. Review of MOS technology. Design rules imposed by fabrication techniques. Systematic structures for control and data flow; system timing; highly concurrent systems. Experimental opportunities available.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5283 Computer Vision
Prerequisites: ECEN 4763 or Departmental Permission.
Description: Fundamental concepts and tools in computer vision. Image formation and camera calibration. Early vision: edge detection, feature extraction, texture analysis. Mid-level vision: clustering, segmentation and object detection. High-level vision: object recognition using principal component analysis (PCA) and video analysis by hidden Markov models (HMMs).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5313 Analog Integrated Circuits
Prerequisites: ECEN 3314 or Departmental Permission.
Description: Advanced studies of analog CMOS IC design with an emphasis on EDA. Topics include bandgap reference, oscillators, PLL, linear regulators, DC-OC converters, low voltage, low power, and energy harvesting techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5333 Semiconductor Devices
Prerequisites: ECEN 3314 or Departmental Permission.
Description: Semiconductor crystal structure and device fabrication, carrier distribution and transport, pn junction and diode, metal-semiconductor heterojunction, MOSFET, BJT and optoelectronic devices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5363 Mixed-Signal Integrated Circuits
Prerequisites: ECEN 3314 or Departmental Permission.
Description: Analysis and design of CMOS mixed-signal IC for VLSI systems. Topics include comparators, switched-capacitor circuits, sample-and-hold, Nyquist and oversampling ADC/DAC, delta-sigma modulation, and digital calibration techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5373 RF Microwave Circuit Design
Prerequisites: ECEN 4613 or Departmental Permission.
Description: Smith chart, single- and multi-port network, filter design, RF/microwave components and modeling, matching and biasing network, amplifier, oscillators and mixers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5413 Optimal Control
Prerequisites: ECEN 4413 or Departmental Permission.
Description: Optimal control theory for modern systems design. Specification of optimum performance indices. Dynamic programming, calculus of variations and Pontryagin's minimum principle. Iterative numerical techniques for trajectory optimization. Same course as MAE 5413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5433 Robotics Kinematics, Dynamics and Control
Prerequisites: ECEN 4413 or Departmental Permission.
Description: Kinematic and dynamic analysis of robot manipulators. Inverse kinematics, motion planning and trajectory generation. Industrial practice in robot servo control. Dynamics and control in the presence of constraints. Actuators and sensors. Force sensors and vision systems. Robotic force control and its applications in industry. Passivity-based control algorithms. Advanced control techniques for motion and force control. Same course as MAE 5433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5453 Engineering Applications of Artificial Intelligence
Description: Graduate-level course exploring AI applications in Electrical and Computer Engineering. The first part of the course introduces foundational AI concepts, principles, and core architectures. The second part focuses on applying these techniques to domain-specific use cases in signal analysis/communications, power systems, healthcare, and computer vision. Each application area is accompanied by a hands-on project to reinforce practical understanding. The course integrates discussion-based lectures with analysis-focused homework assignments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5463 Nonlinear System Analysis and Control
Prerequisites: ECEN 4413 or Departmental Permission.
Description: Failure of superposition of effects; phase-plane analysis; limit-cycles; Lyapunov stability; hyperstability and input-output stability; controllability and observability of nonlinear systems; feedback linearization; robust nonlinear control system design. Same course as MAE 5463. Course previously offered as ECEN 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5473 Digital Control Systems
Prerequisites: ECEN 4413 or Departmental Permission.
Description: Input-output and state-space representation of linear discrete-time systems. Approximate methods in discrete-time representation. Stability methods. Controllability, observability, state estimation, and parameter identification. Design and analysis of feedback control system using frequency-domain and state-space methods. Introduction to optimal control. Same course as MAE 5473. Course previously offered as ECEN 6413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5483 Advanced Mechatronics Design
Prerequisites: MAE 4733 or Departmental Permission.
Description: Optimizing C programming code for microcontrollers using the assembly language instruction set. RS-232 microcontroller communication protocol. Controller Area Network (CAN) communication protocol plus hands-on CAN bus development boards, advanced topics which could include but are not limited to sensor design, real time operating systems, and advanced communication protocols. Same course as MAE 5483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5513 Stochastic Systems
Prerequisites: ECEN 4503 or Departmental Permission.
Description: Theory and applications involving probability, random variables, functions of random variables, and stochastic processes, including Gaussian and Markov processes. Operations on random variables, transformation of random variables, single and multiple random variables, correlation, power spectral density, and stationary and non-stationary random processes. Random sums and sequences. Response of linear systems to stochastic processes. State-space formulation and covariance analysis. Same course as MAE 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5533 Modern Communication Theory
Prerequisites: ECEN 5513 or Departmental Permission.
Description: Noise as a random process, analog and digital signal detection in the presence of noise, optimum receiver design using signal space concepts and introduction to information theory. Trade-offs between bandwidth, signal-to-noise ratio and the rate of information transfer. Example system designs include earth satellite, deep space and terrestrial communication systems and computer communication networks.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5543 Data Transportation and Protection
Prerequisites: Departmental Permission.
Description: Data and its representation; finite field matrices, pseudorandom sequences; information protection; space division networks; synchronization; and channel and error control.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5553 Telecommunications Systems
Prerequisites: Departmental Permission.
Description: Surveys the ways and means that voice, data and video are moved long distances. Covers computer networks (Ethernet LAN's, Internet WAN's); telephone systems (PSTN, VoIP and cellular telephony); video (MPEG, H.323, and IPTV); and last mile delivery systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5573 Wireless Communication
Prerequisites: ECEN 5533 or Departmental Permission.
Description: Wireless channel characterization: large-scale and small scale fading. Techniques to combat fading; diversity techniques, coding techniques, CDMA, OFDM, MIMO. Advanced communication systems such as 5G and Beyond cellular systems, mmWave and Teraherz communications, massive MIMO, and UAV-assisted communications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5613 Electromagnetic Theory
Prerequisites: ECEN 3623 or Departmental Permission.
Description: First graduate level treatment of classical electromagnetic theory. Wave equation, potential theory, boundary conditions. Rectangular, cylindrical and spherical wave functions. Conducting and dielectric guiding structures. Scattering and radiation. Introduction to numerical techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5623 Antenna Theory
Prerequisites: ECEN 3623 or Departmental Permission.
Description: Fundamental antenna parameters, including directivity, efficiency, radiation resistance, and pattern. Analysis of dipole, loop, aperture, broad- band, and traveling wave antennas. Array theory. Introduction to numerical techniques used in modern antenna design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5633 Radar Theory
Prerequisites: ECEN 4503 or Departmental Permission.
Description: Theoretical treatment of radar principles. Overview of radar systems and techniques, radar equation, integration of signals. Radar cross-section of single and multiple targets. Waveform design, resolution, ambiguities and accuracy. Range, speed and angular measurements. Detection of targets in noise. Statistical description of clutter. Signal processing techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5643 Antennas and Propagation for Wireless Communications
Prerequisites: ECEN 4503 or Departmental Permission.
Description: Aspects of radiowave propagation for fixed and mobile communication systems. Review of Maxwell's equations and plane wave propagation, antenna principles. Reflection, refraction, diffraction, fading and scintillation, attenuation, ducting, diversity. Propagation in a cellular environment. Satellite communications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5663 Modern Antennas: From Theory to Design
Prerequisites: ECEN 3613
Description: Combines fundamentals, CAD modeling, and hands-on implementation. Students will use industry-standard EM tools for designing antennas and arrays for real-world applications in radar, space, and next-generation wireless communication systems, including 5G/6G. Students will learn to use state-of-the-art EM tools, design antennas and RF components, and then fabricate and test them. This complete cycle from theory to implementation equips students with essential skills highly sought after in the RF and microwave industries. May not be used for degree credit with ECEN 4663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5683 Biomedical Optics
Prerequisites: ECEN 4843 or Departmental Permission.
Description: Biomedical optics, also often termed as biophotonics, is highly interdisciplinary subject on applying light for diagnostic detection and manipulation of biological tissue. This course introduces fundamental concepts and principal technologies of biomedical optics or biophotonics to graduate students and upper-level undergraduate students. The course includes three parts: The first part discusses light-tissue interaction. The second part introduces approaches to modeling photon propagation in tissue. The third part details several representative light-based sensing and imaging technologies for probing biological tissues at different spatial, spectral, and temporal scales for either morphological or functional diagnosis. Topics of therapeutic use of light will also be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5713 Linear Systems
Prerequisites: ECEN 4413 or Departmental Permission.
Description: Introduction to the fundamental theory of finite-dimensional linear systems with emphasis on the state-space representation. Mathematical representations of systems; linear dynamic solutions; controllability, observability, and stability; linearization and realization theory; and state feedback and state observer. Same course as MAE 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5733 Neural Networks
Prerequisites: ECEN 5713 or Departmental Permission.
Description: Introduction to mathematical analysis of networks and learning rules, and on the application of neural networks to certain engineering problems in image and signal processing and control systems. Same course as CHE 5733 and MAE 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5743 Deep Learning
Prerequisites: ECEN 5733 or equivalent and Departmental Permission.
Description: Analysis, design, training and applications of deep neural networks. Topics include: fundamental deep network architectures, such as multilayer perceptrons, convolutional neural networks, recurrent neural networks and transformers; deep learning software frameworks, such as TensorFlow and PyTorch; application areas, such as image processing (e.g., object detection, object classification, image segmentation) and sequence processing (e.g., language translation, voice assistants, speech recognition, time series prediction).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5763 Digital Signal Processing
Prerequisites: ECEN 4763 or Departmental Permission.
Description: Discrete-time signals and systems; transform analysis of linear systems; design and implementation of digital filters; analog to digital conversion, quantization effects, and oversampling; discrete Fourier transform and the FFT; Fourier analysis using the DFT; introduction to parametric signal modeling; and practical applications of digital signal processing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5773 Intelligent Systems
Prerequisites: ECEN 5713 or Departmental Permission.
Description: Introduction to the state-of-the art intelligent control and system successfully deployed to industrial and defense applications. Emerging intelligent algorithms (e.g., NN, FS, GA, EP, DES); intelligent control architecture (e.g., bottom-up, top-down, seminotics); reinforcement learning and hybrid systems; and case studies and design projects. Same course as MAE 5773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5783 Medical Imaging
Prerequisites: ECEN 4743 or ECEN 4763 or Departmental Permission.
Description: A comprehensive introduction to the physics and engineering foundations of the standard medical imaging modalities used today. Topics include radiation, radiation-interaction with matter, X-ray radiography, ultrasonography, X-ray computed tomography, image reconstruction and analysis, magnetic resonance imaging, nuclear radiation based imaging, and image monitoring aspects of radiation therapy. The fundamental mathematics underlying each imaging modality is reviewed and the hardware needed to implement each system is examined.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5793 Digital Image Processing
Prerequisites: ECEN 4763 or Departmental Permission.
Description: Digital image processing including image acquisition, enhancement, restoration, color image processing, morphological processing, segmentation, representation and description.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5803 Geometrical Optics
Prerequisites: PHYS 3213 or Departmental Permission.
Description: Foundations of geometrical optics, geometrical theory of optical imaging, geometrical theory aberrations, image forming instruments. Same course as PHYS 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5823 Physical Optics
Prerequisites: PHYS 3213 or ECEN 4823 or ECEN 4843 or Departmental Permission.
Description: Multiple beam interference, diffractions, imaging, near field optical probes of matter, surface plasmons, light scattering from random media, optical coherence tomography- biomedical applications, negative materials, perfect lenses and super resolution. Same course as PHYS 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5833 Fiber-Optic Communication Systems
Prerequisites: ECEN 4533 or Departmental Permission.
Description: The fundamentals of fiber-optic communication systems are described in detail. Fiber electromagnetic behaviors, laser and LED transmitters, photodetectors and semiconductor receivers and other hardware components are covered. System level design and integration concepts are covered including modulation schemes, multiplexing, dispersion and power budget, sampling, incoherent and coherent detection, error control, and network distribution. A historical framework shows how technical capabilities and growing communication needs forced fiber systems evolution.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5843 Microelectronic Fabrication
Prerequisites: ECEN 3314 or Departmental Permission.
Description: Contamination control and clean-room, vacuum systems, wafer manufacturing. Photolithography and alternative lithographic techniques. Physical and chemical vapor deposition, oxidation, etching, doping, packaging, formation of semiconductor devices and circuits. A series of Fabrication lab projects is conducted starting from bare silicon wafers to fabricate Optoelectronic circuits.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5853 Ultrafast Optoelectronics
Prerequisites: ECEN 5833 or Departmental Permission.
Description: Principles in ultrafast lasers and terahertz radiation are discussed. Topics include generation, propagation, amplification, and measurement of femtosecond optical pulses. Generation, detection, and manipulation of terahertz waves as fundamentals to understand how time-domain spectroscopy and imaging work will be described. Selected advanced topics in ultrafast metamaterials and plasmonics will also be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 5923 Introduction to MEMS
Prerequisites: ECEN 5843 or Departmental Permission.
Description: Fundamentals of Microsystems. Topics include: energy transduction mechanisms, energy dissipation modeling, energy methods, mechanics of small scale, fabrication process design, micromachining, electronic interface.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6000 Dissertation
Prerequisites: Consent of major professor.
Description: Independent research for students continuing graduate study beyond the level of the MS degree. Offered for variable credit, 1-12 credit hours, maximum of 36 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 6001 PhD Seminar Series
Prerequisites: Approval of ECEN department head.
Description: Seminar series for PhD studies and research.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6050 Preliminary PhD Research and Proposal
Prerequisites: Consent of adviser.
Description: Independent research and report of an advanced electrical engineering problem. Work performed serves as foundation of the oral PhD preliminary exam. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 6060 Special Topics
Prerequisites: Advisor permission.
Description: Advanced engineering topics not normally included in existing courses. Repeat credit may be earned with different course subtitles assigned. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 6070 Advanced Directed Studies
Prerequisites: Admission into PhD program and consent of instructor.
Description: Investigation outside of the classroom of topics not normally covered in lecture courses. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Elec & Computer Engr

ECEN 6123 Special Topics in Power Systems
Prerequisites: ECEN 5113.
Description: Selected relevant current topics related to power system operation and planning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6253 Advanced Topics in Computer Architecture
Prerequisites: ECEN 5253 or CS 5253.
Description: Innovations in the architecture and organization of computers, with an emphasis on parallelism. Topics may include pipelining, multiprocessors, data flow, and reduction machines. Same course as CS 6253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6263 Advanced VLSI Design and Applications
Prerequisites: ECEN 5223 and ECEN 5263.
Description: System timing. Designing testable integrated circuits. Specialized parallel processing architectures. Application examples.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6453 Adaptive Control
Prerequisites: ECEN 5473 or ECEN 5713 or MAE 5473 or MAE 5713.
Description: Analysis and design of control techniques that modify their performance to adapt to changes in system operation. Review of systems analysis techniques, including state variable representations, linearization, discretization, covariance analysis, stability, and linear quadratic Gaussian design. On-line parameter estimation, model reference adaptive systems, self-tuning regulators, stable adaptive systems. Same course as MAE 6453. Course previously offered as ECEN 6450.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6483 Robust Multivariate Control Systems
Prerequisites: ECEN 5713 or MAE 5713.
Description: Introduction to multivariable systems: SISO robustness vs. MIMO robustness; multivariable system poles and zeros; MIMO transfer functions; multivariable frequency response analysis; multivariable Nyquist theorem; performance specifications; stability of feedback systems; linear fractional transformations (LFT's); parameterization of all stabilizing controllers; structured singular value; algebraic ricatti equations; H2 optimal control; H-infinity controller design. Same course as MAE 6483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6523 Information Theory
Prerequisites: ECEN 5513 or consent of instructor.
Description: Mathematical theory of information (Shannon theory) including information measure and transmission rates and capacities. Source coding theory including algebraic and error-correcting codes. Design of waiver-forms for noise immunity. Information transfer in learning systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6803 Photonics I: Advanced Optics
Prerequisites: ECEN 3813 or PHYS 3213 or consent of instructor.
Description: Advanced optics including spectral and time characteristics of detectors, characteristics of lasers, time, spectral and spatial parameters of laser emission, interferometric techniques, and nonlinear effects such as two-photon absorption and second and third harmonic generations. Emphasis on ultrashort laser pulses. Same course as CHEM 6803 & PHYS 6803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6810 Photonics II: THz Photonics and THz-TD
Prerequisites: ECEN 6803.
Description: Concepts and techniques of driving electronic circuitry with ultra short laser pulses to generate and detect freely propagating pulses of THz electromagnetic radiation using several operational research systems. Same course as CHEM 6810 & PHYS 6810. Course previously offered as ECEN 6811. Offered for fixed credit, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 6820 Photonics II: Spectroscopy II
Prerequisites: ECEN 6803.
Description: Operating principles and applications of laser spectroscopy of atoms, molecules, solids and complex fluids. Absorption, emission, photon correlation, coherence, time resolved Fourier transform. Raman spectroscopy and non-linear optical. Same course as CHEM 6820 & PHYS 6820. Course previously offered as ECEN 6821. Offered for fixed credit, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 6823 Advanced Optical Techniques
Prerequisites: ECEN 5853.
Description: State-of-the-art optical devices and research methodologies. Investigation and discussion of contemporary developments in non-linear optical devices and laser applications. Includes both analytical and experimental techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6830 Photonics II: Spectroscopy III
Prerequisites: ECEN 6803.
Description: Advanced spectroscopic instruments and methods used for investigation of semi-conductors and solid state material. Stimulated emission characterized both in wavelength and in time. Time-resolved fluorescence measurements. Multiphotonic excitations. Fast measuring techniques, including subnanosecond detectors, picosecond streak cameras, and ultra fast four-wave mixing and correlation techniques. Time-dependent photoconductivity measurements. Same course as CHEM 6830 & PHYS 6830. Course previously offered as ECEN 6831. Offered for 1 fixed credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 6840 Photonics III: Microscopy I
Prerequisites: CHEM 3553 or consent of instructor.
Description: The structure and imaging of solid surfaces. Basics of scanning probe microscopy (SPM). Contact and non-contact atomic force microscopy (AFM). Scanning tunneling microscopy (STM) in air. Same course as CHEM 6840 & PHYS 6840. Course previously offered as ECEN 6841. Offered for fixed credit hours, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 6843 Advanced Microelectronic Fabrication
Prerequisites: ECEN 5843.
Description: Photolithography, wet and dry etching, thermal and electron beam evaporation, photomask design using L-Edit, silicon devices processing, quartz devices processing, silicon-on-sapphire devices processing. GaAs devices processing and MEMS devices processing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Elec & Computer Engr

ECEN 6850 Photonics III: Microscopy II
Prerequisites: CHEM 3553 or consent of instructor.
Description: Advanced techniques of scanning probe microscopy (SPM). Magnetic force microscopy, Kelvin force microscopy, scanning probe microscopy (STM) in vacuum. Characterization of materials with SPM. Nanolithography with SPM. Device manufacturing and analysis. Same course as CHEM 6850 & PHYS 6850. Course previously offered as ECEN 6851. Offered for 1 fixed credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 6860 Photonics III: Microscopy III and Image Processing
Prerequisites: ECEN 5793.
Description: Digital image processing, including projects. Image acquisition and display, image enhancement, geometric operations, linear and nonlinear filtering, image restoration, edge detection, image analysis, morphology, segmentation, recognition, and coding/compression. Same course as CHEM 6860 & PHYS 6860. Offered for fixed credit hours, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 6870 Photonics IV: Synthesis and Devices I
Prerequisites: ECEN 6803 and ECEN 6840.
Description: Preparation of functional nanostructures and related optical/electronic devices. Physical and chemical methods of thin film deposition. Engineering of prototypes of light emitting diodes, sensors, optical limiting coatings, lithographic patterns. Same course as CHEM 6870 & PHYS 6870. Course previously offered as ECEN 6871. Offered for 1 fixed credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 6880 Photonics IV: Semiconductor Devices, Testing and Characterization
Prerequisites: ECEN 6803 and ECEN 6840.
Description: Test and characterization of semiconductor and optoelectronic devices. Hall effect, four point probe, CV and IV measurements, optical pump-probe, photoluminescence and electro-optics sampling. Same course as CHEM 6880 & PHYS 6880. Course previously offered as ECEN 6881. Offered for 1 fixed credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Elec & Computer Engr

ECEN 6890 Photonics IV: Semiconductor Synthesis and Devices III
Prerequisites: ECEN 6803.
Description: Processing, fabrication and characterization of semiconductor optoelectronic devices in class 100/10000 cleanrooms. Cleanroom operation including general procedure for material processing and device fabrication. Device processing using a variety of processing such as mask aligner, vacuum evaporators and rapid thermal annealer. Testing using optical and electrical testing apparatus such as I-V, C-V, Hall, and optical spectral measurement systems. Same course as CHEM 6890 & PHYS 6890. Course previously offered as ECEN 6891. Offered for fixed 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Elec & Computer Engr

Electronics Engineering Technology (EET)

EET 1003 Introduction to Microcomputer Programming
Prerequisites: Consent of instructor.
Description: Programming a microcomputer using a spreadsheet and in BASIC. Application of algorithms to solve defined problems and an introduction to the numerical limitations of small machines. Previously offered as ECT 1003.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 1101 Fundamentals of DC Circuits Lab
Prerequisites: Consent of instructor.
Description: Elementary principles of dc electricity laboratory for Non-EET students who have taken a dc circuits course without a lab component. This is the same curriculum and lab experience that students would experience taking EET 1114. May not be used for degree credit with EET 1134 or EET 1104.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Mater Mero Manuf Engineering

EET 1104 Fundamentals of Electricity
Prerequisites: Concurrent enrollment in MATH 2123 or MATH 2144 or Consent of Instructor.
Description: Elementary principles of electricity covering basic electric units. Ohm's law, Kirchoff's law, circuit solutions, network solutions, magnetism, inductance and capacitance. Previously offered as ECT 1104. May not be used for degree credit with EET 1134 or EET 1101.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 1134 Fundamentals of DC Circuits
Prerequisites: Concurrent enrollment in MATH 2123 or MATH 2144 or consent of instructor.
Description: Elementary principles of dc electricity laboratory for Non-EET students covering basic electrical units, Ohm's Law, Kirchoff's Law, circuit solutions, network solutions, magnetism, inductance and capacitance. May be substituted for EET 1104 and grade of "B" or better and consent of the department. May not be used for degree credit with EET 1101.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 1201 Fundamentals of AC Circuits Lab
Prerequisites: "C" or better in EET 1104 OR "C" or better in EET 1134 or consent of instructor.
Description: Elementary principles of ac electricity laboratory for Non-EET students who have taken an ac circuits course without a lab component. This is the same curriculum and lab experience that students would experience taking EET 1214. May not be used for degree credit with EET 1214 or EET 1244.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Mater Mero Manuf Engineering

EET 1214 Fundamentals of AC Circuits
Prerequisites: ("C" or better in EET 1104 OR "C" or better in EET 1134) AND ("C" or better in MATH 2123 OR "C" or better in MATH 2144) or consent of instructor.
Description: Elementary principles of ac electricity laboratory for Non-EET students covering basic electrical units, The use of network theorems and phasors, coupled circuits, resonance, filters and power will be studied. May be substituted for EET 1244 with grade of "B" or better and consent of the department. May not be used for degree credit with EET 1201.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 1244 Circuit Analysis I
Prerequisites: ("C" or better in EET 1104 OR "B" or better in EET 1134) AND ("C" or better in MATH 2123 OR "C" or better in MATH 2144) OR consent of instructor.
Description: Analysis of AC electric circuits. The use of network theorems and phasors, coupled circuits, resonance, filters, and power. Course previously offered as ECT 1244. May not be used for degree credit with EET 1214 or EET 1201.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 2303 Technical Programming
Prerequisites: Consent of instructor.
Description: Introduction to machine programming using industrial standard languages, emphasis on problems from science and technology. Course previously offered as ECT 2303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 2544 Pulse and Digital Techniques
Prerequisites: "C" or better in EET 1104 or "B" or better in EET 1134 OR ("C" or better in ENSC 2613 and ENSC 2411A) OR equivalent. Prerequisites may be taken concurrently.
Description: Electronic circuits used in digital control and computation. Pulse generation, Boolean algebra and logic circuits. Course previously offered as ECT 2544.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 2633 Solid State Devices and Circuits I
Prerequisites: ("C" or better in EET 1244 OR "B" or better in EET 1214 OR ("C" or better in both ENSC 2613 AND ENSC 2411)) AND ("C" or better in MATH 2123 OR MATH 2144).
Description: Diodes, Circuit protection, wave shaping, rectifiers, load switching, and power supplies. Transistors and Op amps and their applications. Course previously offered as ECT 2635 and EET 2635.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 2643 Solid State Devices and Circuits II
Prerequisites: EET 2633.
Description: A continuation of EET 2633. Transistors and their applications - amplifiers. Op-amp circuits, comparators, instrument amplifiers, and filters and their analysis.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 3005 Electronics Analysis I
Prerequisites: EET 1244 and EET 2544 and EET 2635.
Description: Extensive use of mathematics in analyzing discrete, linear device, linear systems and non-linear circuits. Development of the analytic skills necessary for upper-division work. The use of basic calculus in circuit analysis. Must obtain a "C" or better before admission to other 3000 level EET courses. Intended for transfer and returning students. Enrollment by adviser consent.
Credit hours: 5
Contact hours: Lecture: 5 Contact: 5
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3104 Elements of Electricity and Electronics
Prerequisites: MATH 1513.
Description: Essentials of electricity, controls, and electronics for non-majors. No credit for EET majors. Course previously offered as ECT 3104.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 3113 Circuit Analysis II
Prerequisites: (EET 1244 with a grade of "C" or better OR EET 1214 with a grade of "B" or better AND EET 2635 OR EET 2633 with a grade of "C" or better AND MATH 2133 with a grade of "C" or better OR MATH 2153 with a grade of "C" or better) or (ENSC 2613 and ENSC 2411 with "C" or better).
Description: Application of elementary switching functions and LaPlace transforms to electronic circuit analysis. Circuit analysis in the S-plane, transfer functions and the application of circuit analysis software. Course previously offered as ECT 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3123 Project Design and Fabrication
Prerequisites: ("C" or better in EET 2544 AND ("C" or better in EET 2635 OR "C" or better in EET 2633)) OR ("C" or better in ENSC 2613 and ENSC 2411 AND (a "C" or better in EET 2635 OR EET 2633)) OR Instructor Approval.
Description: Methods of designing, analyzing and fabricating electronic circuits using standard software packages. Heat transfer characteristics and problem solutions are included. Course previously offered as ECT 3124 and EET 3124.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3253 Microprocessors I
Prerequisites: EET 2544.
Description: An introduction to microcontrollers and their uses in embedded applications. Topics include system architecture, assembly language, structured programming, memory systems, user I/O, timers, peripherals, etc. Course previously offered as ECT 3254 and EET 3254.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3263 Microprocessors II
Prerequisites: EET 2303 with a grade of "C" or better and ((EET 3254 or EET 3253) with a grade of "C" or better).
Description: A continuation of EET 3253. Programming and interfacing of microcontrollers in embedded application, including interrupts, EEPROM, serial programming, interfacing, power management, algorithms, stepper motor control. Course previously offered as ECT 3264 and EET 3264.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3303 Python Programming for Technology and Engineering
Prerequisites: MATH 2123 or MATH 2144 plus previous programming experience in any language.
Description: The Python programming language including syntax, collections, modules, object-oriented programming, functions, and graphical user interfaces with emphasis on applications in technology and engineering.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3354 Communication and Signal Processing
Prerequisites: "C" or better in (EET 2635 or EET 2643) and "C" or better in EET 3423.
Description: Bandpass signaling principles and circuits. The Fourier transform; AM, SSB, FM, and PM signaling; binary modulated bandpass signaling (FSK and PSK); superheterodyne receiver; phase locked loop (PLL); modulators and mixers; frequency multiplication; special purpose IC's. Course previously offered as ECT 3354.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 3363 Data Acquisition
Prerequisites: "C" or better in EET 2544 AND "C" or better in EET 2635 OR EET 2633.
Description: Methods used to convert physical variables to digital signals and vice versa. Signal conditioning, digital-to-analog converters, analog-to-digital converters, sample-and-hold circuits, sensors, and transducers. The use of computers in data acquisition and signal processing. Course previously offered as ECT 3363.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 3423 Applied Analysis for Technology
Prerequisites: MATH 2133 with a grade of "C" or better OR MATH 2153 with a grade of "C" or better.
Description: Applications of elements of matrix algebra, ordinary differential equations, Fourier series, and infinite series to problems in engineering technology. Previously offered as GENT 3123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3523 Advanced Logic Circuits
Prerequisites: EET 2544 with a grade of "C" or better.
Description: Computer-based design, simulation and implementation of digital/mixed-signal systems using programmable logic, field programmable gate arrays, ASICs and system-on-chip technology. Previously offered as EET 3524.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3533 Introduction to Telecommunications
Prerequisites: "C" or better in EET 2544 AND "C" or better in EET 2635 OR EET 2633.
Description: Introductory course to the field of telecommunications. Study of the various technologies and how the application of these technologies work together to form functioning systems and networks.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 3713 Introduction to Electric Power Technology I
Prerequisites: ("C" or better in EET 1244 OR "B" or better in EET 1214 AND ("C" or better in MATH 2133)) OR ("C" or better in ENSC 2613 AND ENSC 2411).
Description: Physical principles of electromagnetic and electromechanical energy conversion devices and their application to conventional transformers and rotating machines.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3723 Introduction to Electric Power Technology II
Prerequisites: "C" or better in EET 3713.
Description: Physical principles of electromagnetic and electromechanical energy conversion devices and their application to conventional transformers and rotating machines.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 3803 Fundamentals of Mechatronics
Prerequisites: Grade of “C” or better in EET 2635 OR Grade of "C" or better in EET 2633.
Description: Fundamentals of mechatronic systems and components. Different modelling approaches used for mechatronics systems, sensors and actuators, data acquisition and interfacing, signal conditioning, and PLC’s. Previously offered as GENT 3503. Same course as MET 3803.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 4050 Advanced Electronic Problems
Prerequisites: Junior standing and consent of head of department.
Description: Junior standing and consent of head of department. Special problems in the electronic area. Course previously offered as ECT 4050. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mater Mero Manuf Engineering

EET 4314 Elements of Control
Prerequisites: "C" or better in EET 3113 AND "C" or better in EET 3363 AND "C" or better in EET 3423.
Description: Principles of analog and digital control, with emphasis on the analysis of feedback control systems in their various conceptual configurations. Application of feedback control theory to the analysis and design of present day circuits and systems. Use of circuit analysis software. Course previously offered as ECT 4314.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 4323 Applied Artificial Intelligence
Prerequisites: "C" or better in EET 3303 AND "C" or better in EET 4813 AND ("C" or better in STAT 4033 OR "C" or better in STAT 4033).
Description: The course will follow a project based learning approach to introduce students with the theoretical and implantation of artificial intelligence algorithms. Topics include supervised learning, unsupervised learning, and deep reinforcement learning.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 4363 Digital Signal Processing
Prerequisites: "C" or better in EET 3354 AND "C" or better in EET 3363.
Description: Introduction to Digital Signal Process. Theoretical development of Fourier transforms, IIR and FIR filters. Significant Design and programming projects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

EET 4514 Advanced Telecommunication Topics
Prerequisites: "C" or better in EET 3533.
Description: Study of data transmission techniques between digital electronic devices.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 4654 Microwave Techniques
Prerequisites: "C" or better in EET 2635 OR EET 2633 AND "C" or better in EET 3354.
Description: Study of topics pertaining to VHF behavior of circuits and systems. Transmission line theory: wave equations, SWR, impedance calculations and transformations, and lossy lines. Extensive use of the Smith chart to solve transmission line problems. Introduction to Maxwell's equations, with emphasis on steady state. Wave propagation in rectangular waveguides. Introduction to antennas. Modeling of transistors at VHF, UHF, and microwave frequencies. Design and analysis of transistor amplifiers at VHF using y and s parameters. Designing LC impedance matching networks. Previously offered as ECT 4654.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 4803 Mechatronic System Design
Prerequisites: Grade of "C" or better in EET 3423 and EET 3803 (can be concurrent enrollment in EET 3423 with instructor approval).
Description: Modelling of mechanical, electrical, and hydraulic components. Feedback control systems, electro-hydraulic drives, electrical drives, and microcontroller programming. Previously offered as GENT 4503. Same course as MET 4803.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 4833 Industrial Project Design I
Prerequisites: ("C" or better in EET 3123 or EET 3124 AND ("C" or better in EET 3363 OR concurrently enrolled in EET 3363 with instructor approval)) OR ("C" or better in EET 3363 AND 10 credit hours of upper-division EET courses).
Description: Course mirrors the design process in industry. Topics covered are design team formation, identify objectives, define design specifications, write specifications, create a state of work and Gantt chart, create a project budget, perform a preliminary design review, design prototype. Previously offered as EET 4832 and ECT 4832.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 4843 Industrial Project Design II
Prerequisites: "C" or better in EET 4833 OR a "C" or better in ENGR 4403 OR ENGR 4404.
Description: Student continues in the project steps of Change Board Review, Critical Design Review, developing & writing test specs., product fabrication and testing, formal technical report submission and outcomes assessment exam. May be substituted with ENGR 4403 OR ENGR 4404.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

EET 4903 Mechatronics of Autonomous Systems
Prerequisites: "C" or better in EET 3803 OR "C" or better in MET 3803.
Description: The course will follow a project based learning approach to introduce students with the mechatronics of autonomous systems.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

Engineering (ENGR)

ENGR 1000 Lower Level Special Topics
Description: Special Topics sessions taught by CEAT faculty members targeted to underclassmen. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 1111 Introduction to Engineering
Description: An introduction to the study and practice of engineering. Skills for students in CEAT; expected engineering student behavior; tools needed by CEAT students; and the role of engineers in society. An introduction to engineering ethics; safety issues; and the relationship of engineering to social, global and contemporary issues. Student enrichment opportunities in the CEAT. May not be used for degree credit with ENGR 1113. Same course as UNIV 1111.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Discussion
Department/School: Dean of Engineering

ENGR 1113 Introduction to Engineering Mathematics
Prerequisites: High school algebra or MATH 0123 or equivalent.
Description: This course focuses on applications of engineering mathematics to analysis and design problems across disciplines of engineering. Application of algebra, trigonometry, linear systems of equations, and basic calculus are illustrated through hands-on laboratory experiments and design projects. May not be used for degree credit with ENGR 1111.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Engineering

ENGR 1322 Engineering Design with CAD
Description: Introduction to engineering design using modern design methodologies and computer-aided tools. Design, construction and testing through participation in a multidisciplinary team-based design project contest.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Engineering
Additional Fees: HS ConCur OL Res Tuit CEAT fee of $189.10 per credit hour applies.

ENGR 1332 Engineering Design with CAD for MAE
Description: Introduction to engineering design using modern design methodologies and computer-aided tools appropriate for mechanical and aerospace engineering. Design, construction and testing through participation in a multidisciplinary team based design project contest.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Engineering
Additional Fees: HS ConCur OL Res Tuit CEAT fee of $189.10 per credit hour applies.

ENGR 1412 Introductory Engineering Computer Programming
Description: Programming to solve problems typical of practice in engineering. Techniques and methods.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Engineering
Additional Fees: HS ConCur OL Res Tuit CEAT fee of $189.10 per credit hour applies.

ENGR 2030 Co-op Industrial Practice I
Prerequisites: Sophomore standing and permission of Co-op coordinator.
Description: Pre-engineering industrial practice. Written reports as specified by adviser. Application of credit to meet degree requirements varies with level and department. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Engineering
Additional Fees: ENGR 2030 Co-Op Fees Waived fee of $-194.90 per credit hour applies.

ENGR 2100 Orientation Projects
Prerequisites: Pre-engineering standing.
Description: Enrollment in independent study or small groups. Projects to assist students with special needs to adjust to engineering curriculum. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Engineering

ENGR 2400 Engineering Lab Topics
Prerequisites: ENGR 1111 or BAE 1112 or ARCH 1112 or CMT 1213 and enrolled as a CEAT student or permission of the instructor.
Description: Engineering lab topics developed in relationship to ENSC or ENGR courses to provide hands-on interdisciplinary learning. Offered for variable credit, 1-3 credit hours, maximum of 4 credit hours.
Credit hours: 1-3
Contact hours: Lab: 2-6 Contact: 2-6
Levels: Undergraduate
Schedule types: Lab
Department/School: Dean of Engineering

ENGR 2421 Engineering Data Acquisition Controls Lab
Description: Laboratory course that provides hands-on learning regarding topics that engineering students will encounter in CEAT and throughout their careers. The course is "signal" based and will cover core data acquisition and controls utilizing LabVIEW software. Students will develop the skills required to interface with sensors to acquire data and actuate to control systems.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Dean of Engineering

ENGR 2890 Introductory Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental introductory honors experience to partner concurrently with designated course(s). This course adds different intellectual dimension to the designated course(s).
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering
General Education and other Course Attributes: Honors Credit

ENGR 3030 Co-op Industrial Practice II
Prerequisites: Junior standing and permission of Co-op coordinator.
Description: Pre-engineering industrial practice. Written reports as specified by adviser. Application of credit to meet degree requirements varies with level and department. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Engineering
Additional Fees: ENGR 3030 Co-Op Fees Waived fee of $-194.90 per credit hour applies.

ENGR 3061 Domestic Scholars Experience
Prerequisites: Consent of the coordinator of CEAT Student Services.
Description: Participation in the domestic scholars experience.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 3080 International Experience
Prerequisites: Consent of the associate dean of the college.
Description: Participation in a formal or informal educational experience outside of the USA. Offered for variable credit, 1-18 credit hours, maximum of 36 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Engineering

ENGR 3090 Study Abroad
Prerequisites: Consent of the Study Abroad office and associate dean of the college.
Description: Participation in an OSU reciprocal exchange program. Offered for variable credit, 1-18 credit hours, maximum of 36 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Engineering
Additional Fees: Study Abroad fee of $250 applies.

ENGR 3890 Advanced Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental advanced honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated course(s). Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering
General Education and other Course Attributes: Honors Credit

ENGR 4010 Engineering Problems and Design
Prerequisites: Permission of the instructor.
Description: Special projects and independent study. Offered for variable credit, 1-6 credit hours, maximum of 10 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Engineering

ENGR 4030 Co-op Industrial Practice III
Prerequisites: Senior standing and permission of Co-op coordinator.
Description: Pre-engineering industrial practice. Written reports as specified by adviser. Application of credit to meet degree requirements varies with level and department. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Engineering
Additional Fees: ENGR 4030 Co-Op Fees Waived fee of $-69.20 per credit hour applies.

ENGR 4043 International Engineering Service Learning I (G)
Prerequisites: Approval of instructor.
Description: International engineering service learning experience. Project design, construction, implementation and training to provide permanent answer to clients' needs. Emphasis on the development of culturally acceptable engineering designs. Includes classroom lectures, hands-on design, writing assignments and travel to foreign country. For both engineering and non-engineering majors.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering
General Education and other Course Attributes: International Dimension

ENGR 4053 International Engineering Service Learning II (G)
Prerequisites: ENGR 4043 and approval of instructor.
Description: A continuation of ENGR 4043. International engineering service learning experience. Project design, construction, implementation and training to provide permanent answer to clients' needs. Emphasis on the development of culturally acceptable engineering designs. Includes classroom lectures, hands-on design, writing assignments and travel to foreign country. For both engineering and non-engineering majors.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering
General Education and other Course Attributes: International Dimension

ENGR 4060 Topics in Technology and Society
Description: Problems of society relating to technology and added problems stemming from their solution. Minimal reliance on mathematics; for engineering and non-engineering students. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Engineering

ENGR 4061 CEAT Scholars Study Abroad (G)
Prerequisites: Permission of instructor.
Description: Comparison of technologies, history, culture and economic systems between the U.S. and another country or countries. Includes both classroom and travel for on-site study.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering
General Education and other Course Attributes: International Dimension

ENGR 4063 Study Abroad: Issues of Engineering, Architecture, Technology & Culture in an Intl Context (G)
Prerequisites: Sophomore standing and permission of the Associate Dean of Academics and the Study Abroad Office.
Description: Study abroad experience led by CEAT faculty with a goal of developing a deeper understanding of cultural values and perspectives outside of the United States related to engineering, architecture, technology.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Dean of Engineering
General Education and other Course Attributes: International Dimension

ENGR 4073 Technology and Culture of Italy
Prerequisites: Approval of instructor.
Description: Examination of the technology, history and culture of Italy, with an emphasis on the development of cultural competency. Analysis of similarities and differences in professional practices. Includes classroom lectures, writing assignments and travel to Italy. Minimal reliance on mathematics. For both engineering and non-engineering majors.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 5 Other: 4
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering

ENGR 4083 Technology and Culture of Brazil
Prerequisites: Approval of instructor.
Description: Examination of the technology, history and culture of Brazil, with an emphasis on the development of cultural competency. Analysis of similarities and differences in professional practices. Includes classroom lectures, writing assignments and travel to Brazil. Minimal reliance on mathematics. For both engineering and non-engineering majors.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 5 Other: 4
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering

ENGR 4093 Technology and Culture of France
Prerequisites: Approval of instructor.
Description: Examination of the technology, history and culture of France, with an emphasis on the development of cultural competency. Analysis of similarities and differences in professional practices. Includes classroom lectures, writing assignments and travel to France. Minimal reliance on mathematics. For both engineering and non-engineering majors.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 5 Other: 4
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering

ENGR 4103 Impact of Law on Engineering Practice
Prerequisites: Junior standing or consent of instructor.
Description: Principles and impact of U.S. and international laws and regulations on technical professionals, including the impact of environmental regulations, intellectual property laws, tort claims, and product liability on the design, research and oversight of technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4113 Intellectual Property Law for Technical Professionals (S)
Prerequisites: Junior standing or consent of instructor.
Description: Law and regulations of patents and other intellectual property protection methods. Impact of statutory and common law on the practice of technical professionals and how they can exploit intellectual property in their daily work.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4123 Tort and Products Liability Law for Technical Professionals (S)
Prerequisites: Junior standing or consent of instructor.
Description: Legal liability of the work product and duties of technical professionals to the public. Relevant statutory, regulatory and common law relating to torts, specifically products liability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4133 Environmental Regulation for Technical Professionals (S)
Prerequisites: Junior standing or consent of instructor.
Description: Environmental laws and regulations are omnipresent in the practice of engineering, science and architecture. Survey of the environmental laws and regulations affecting the practice of these professions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4163 Study Abroad: Issues of Engineering, Architecture, Technology, Culture & Aesthetics
Prerequisites: Sophomore standing and permission of the Associate Dean of Academics and the Study Abroad Office.
Description: Study abroad experience led by CEAT faculty with a goal of developing a deeper understanding of cultural values and perspectives, and aesthetics, outside of the United States related to engineering, architecture, technology.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Dean of Engineering

ENGR 4201 Principles of Nuclear Engineering
Description: The nuclear enterprise, radiation, biological effects of ionizing radiation, nuclear reactor power plants, radioactive waste disposal, the fission process, food irradiation activities, applications of nuclear power in space, approaches to radiation detection, thermonuclear fusion, and nuclear weapons and proliferation.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4203 Nuclear Technologies in Society: Fulfilling Madame Curie's Dream
Description: Introduction to applications of nuclear science and technology and the radiation principles governing these applications. Problem-based learning environment. Class assignments are web-based and include reference materials and modules to be completed by students.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4211 Introduction to Nuclear and Radiation Engineering Concepts
Description: Aspects and applications of nuclear and radiation engineering/physics. History of nuclear development, basic concepts of radiation and radioactivity, radioactive waste management, global warming and the impact of nuclear power plants, industrial applications, health physics, nuclear medicine, job opportunities at power plants, graduate school and national labs.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4213 Elements of Nuclear Engineering
Prerequisites: ENGR 4201, ENGR 4211 or ENGR 4203 and MATH 2163, PHYS 2114.
Description: Nuclear engineering concepts and applications, including nuclear reactions, radioactivity, radiation interaction with matter, reactor physics, risk and dose assessment, applications in medicine, industry, agriculture and research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4223 Nuclear Reactor Engineering
Prerequisites: ENGR 4213 and MATH 2233.
Description: Physics governing nuclear reactors and the design principles for commercial nuclear power plants. Reactor designs currently operating in the power industry. Generation III and Generation IV reactor designs are also discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4233 Energy Systems and Resources
Prerequisites: ENGR 4213.
Description: Energy systems, renewable and non-renewable energy sources, and advances in energy applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4243 Radiation Protection and Shielding
Prerequisites: ENGR 4213 and MATH 2233.
Description: Radiation protection, doses, associated risks, and exposure limits; properties of natural and other radiation sources, and evaluation of internal and external doses; and techniques for shield design including ray, point kernal, and transport theories for both neutrons and gamma rays.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4253 Nuclear Reactor Analysis
Prerequisites: ENGR 4213 and MATH 2233.
Description: Fundamental physical principles, concepts and modeling techniques for analysis and design of nuclear reactors. Prepares students to analyze nuclear reactors including aspects of performance, dynamics and safety and to either develop new designs or to assess existing or proposed designs based upon fundamental understanding of reactor physics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4263 Nuclear Reactor Theory
Prerequisites: ENGR 4243.
Description: Introduction to neutron diffusion theory, neutron moderation, neutron thermalization, and criticality conditions of nuclear reactors. Distance education only.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4273 Probabilistic Risk Assessment
Prerequisites: ENGR 4213.
Description: This course is a detailed introduction to neutron diffusion theory, neutron moderation, neutron thermalization, and criticality conditions of nuclear reactors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4283 Science and Technology of Terrorism and Counterterrorism
Description: A General overview of energy systems, renewable and non-renewable energy sources, and advances in energy applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4293 Nonproliferation: Issues for Weapons of Mass Destruction
Description: Weapons of mass destruction (WMDs) are a direct consequence of 20th-century technology. The challenges that we face in coming to grips with the awesome destructive power that WMDs hold will be a dominant theme of the 21st century.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4300 Nuclear Engineering Special Topics
Description: Special topics, variable credit hour course (1-8 credits) for Nuclear Minor.
Credit hours: 1-8
Contact hours: Lecture: 1-8 Contact: 1-8
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4353 Materials Requirement and Selection for Nuclear Energy Applications
Prerequisites: CHEM 1314 and MATH 2153 and ENSC 2213 and ENSC 2143 or permission of instructor.
Description: With the resurgence of the nuclear power industry and the growth of the nuclear Navy, there is a need for engineers trained in the materials needs of the nuclear industry. This course covers corrosion and degradation of materials in the nuclear and non-nuclear portions of nuclear power facilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 4403 Interdisciplinary Senior Design
Prerequisites: Permission of the instructor and department for all students.
Description: Open-ended interdisciplinary design project with team format addressing real world challenges through applied engineering, collaborative problem-solving and design solutions, prototyping, economic analysis, project management, and fostering entrepreneurial/intrapreneurial opportunities. Projects may be sponsored by a company, agency, individual or be self-generated. Team members work with sponsors, professionals, and faculty who serve as mentors in fields related to their project focus. Previously offered as ENGR 4400. Same course as ENGR 4404.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Dean of Engineering

ENGR 5010 Engineering Problems and Design
Prerequisites: Permission of instructor.
Description: Special projects and independent study. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 5090 Study Abroad
Prerequisites: Graduate student standing, Consent of the Study Abroad office and Associate Dean of the college.
Description: Participation in an OSU reciprocal exchange program. Offered for variable credit, 1-12 credit hours, maximum of 24 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Engineering

ENGR 5103 Advanced Impact of Law on Engineering Practice
Prerequisites: Graduate standing.
Description: Principles and impact of U.S. and international laws and regulations on technical professionals, including the impact of environmental regulations, intellectual property laws, tort claims, and product liability on the design, research and oversight of technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 5113 Advanced Intellectual Property Law for Technical Professionals
Prerequisites: Graduate standing.
Description: Law and regulations of patents and other IP protection methods. Impact of statutory and common law has made on the practice of technical professionals and how they can exploit IP in their daily work.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 5123 Advanced Tort and Products Liability Law for Technical Professionals
Prerequisites: Graduate standing.
Description: Legal liability of the work product and duties of technical professionals to the public. Relevant statutory, regulatory and common law relating to torts, specifically products liability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 5133 Advanced Environmental Law for Technical Professionals
Prerequisites: Graduate standing.
Description: Environmental laws and regulations are omnipresent in the practice of engineering, science, and architecture. This course will survey the environmental laws and regulations affecting the practice of these professions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 5333 Production Engineering
Prerequisites: Consent of instructor.
Description: Fundamental production engineering design, evaluation, and optimization for oil and gas wells, including well deliverability, formation damage and skin analysis, completion performance, and technologies that improve oil and gas well performance. Offered through distance education only. No credit with credit in 4333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENGR 5343 Reservoir Engineering
Prerequisites: Consent of instructor.
Description: Reservoir description techniques using petrophysical and fluid properties; engineering methods to determine fluids in place, identify production-drive mechanisms, and forecast reservoir performance; implementation of pressure-maintenance schemes and secondary recovery. Offered through distance education only. No credit with credit in 4343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Engineering

Engineering Management (EM)

EM 4173 Cost Control and Analysis for Engineering and Technology Professionals
Prerequisites: IEM 3503 or IEM 3513 or permission of the department.
Description: Presents the fundamental concepts, methods, strategies and terminology necessary for engineers and engineering managers to interpret financial data properly. The information is designed to enable engineers and project managers to prepare, appraise, evaluate and approve financial plans to accomplish specific departmental and company objectives. May not be used for degree credit with EM 5173 or ETM 5173. Previously offered as ETM 4173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5110 Seminar
Prerequisites: Admission to the master's program or consent of instructor.
Description: Guided study in a topic area selected to enhance a student's program. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Previously offered as ETM 5110.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

EM 5111 Introduction to Strategy, Technology and Integration
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Introduces students to the discipline of engineering and technology management, emphasizing the importance of strategy, technology, and integration, where timing of products and services are keys to market success. Previously offered as ETM 5111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5133 Capstone to Strategy, Technology and Integration
Prerequisites: Enrolled in last semester of MSEM program or consent of advisor.
Description: Independent analysis of a business problem. Student prepares a proposal and report that makes substantive use of MSEM material, and is a notable and relevant contribution to the student's organization. Readings and discussions. Previously offered as ETM 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5143 Strategic Decision Analysis for Engineering and Technology Managers
Prerequisites: Admission to MSEM program or consent of instructor.
Description: Introduction to analytical concepts and procedures engineering and technology managers can use to strategically allocate resources to achieve business objectives. Strengths and weaknesses of alternative analytical procedures to evaluate alternative resource allocation decisions are outlined. Theoretical foundations, data requirements, application and strengths and weaknesses of cost-benefit analysis techniques when making strategic management decisions are evaluated. Previously offered as ETM 5143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5153 Foundations of Engineering Management
Prerequisites: Admission to MSEM program or consent of instructor.
Description: Principles and practices of the management of engineering and technology activities. Focus is on the tools and methods for solving problems in service and industrial systems. Previously offered as ETM 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5163 Business Innovation and Technology
Description: Advanced study of innovation and technology in a business setting. Strategic development of internal and external innovation. Planning, implementation, evaluation and control technology. Previously offered as ETM 5163. May not be offered for degree credit with MGMT 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5173 Cost Control and Analysis for Engineering and Technology Professionals
Prerequisites: IEM 3503 or IEM 3513 or permission of the department.
Description: Presents the fundamental concepts, methods, strategies and terminology necessary for engineers and engineering managers to interpret financial data properly. The information is designed to enable engineers and project managers to prepare, appraise, evaluate and approve financial plans to accomplish specific departmental and company objectives. May not be used for degree credit with EM 4173 or ETM 4173. Previously offered as ETM 5173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5183 Introduction to Systems Engineering
Description: Presents the fundamental processes, products, methodologies, tools, standards and considerations required during execution of the planning, designing, fielding, sustaining and decommissioning of a system. Requirements analysis, safety and risk management, test and evaluation, verification and validation, technical reviews, metrics analysis, configuration management and modifications management, will be presented and discussed using the systems engineering framework. Introduces INCOSE, IEEE, and ISO standards, policies, processes and guidelines.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5211 Enterprise Integration
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Conceptualizing, designing and operating advanced manufacturing systems within an integrated enterprise-wide framework. Recent developments in computer and communication technologies and conceptual breakthroughs regarding the nature and behavior of integrated enterprises. Previously offered as ETM 5211.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5221 Engineering Teaming
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Management and group issues inherent in the application and implementation of high performing work teams. The team's roles in improving organizational performance, along with the best practice procedures and techniques that increase team effectiveness. Previously offered as ETM 5221.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5231 Benchmarking
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Benchmarking as an effective approach to study and adopt or adapt methodologies representing best specific practices from any industry; or identify and assess performance based on equivalent and common measures, usually from those in the same or similar industries, including competitors. Previously offered as ETM 5231.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5241 Strategic Project Management
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Overview of traditional project management concepts and techniques (i.e., Gantt charts, PERT, CPT) along with several technical issues related to their effective use. Fundamental nature of the problems associated with several technical issues related to their effective use. Fundamental nature of the problems associated with effectively managing and coordination of multiple discrete projects within an overall systems integration initiative. A framework for addressing these problems. Previously offered as ETM 5241.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5253 Engineering Problem Solving and Decision-Making
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Processes and tools for problem solving and decision making in technical organizations. Focus on issues involving both quantitative and qualitative factors, where the quantitative factors are the result of an engineering analysis. Risk and systems analysis tools provide a fundamental background to understanding the context in which technical decisions are made. Concentration on general systems theory as developed by Ludwig von Bertalaffy. Course previously offered as ETM 5251 and ETM 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5271 Technology Forecasting and Assessment
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: A framework and analytical tools for developing technological foresight. Technology monitoring, forecasting and assessment in the context of a family of emerging technologies. Previously offered as ETM 5271.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5283 Strategic Planning
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Continuous and systematic process of thought about the future, resulting in a plan or specific course of action for communicating, coordinating and controlling activities. Strategic, long-range, tactical, operational, contingency and performance planning. Course previously offered as ETM 5282 and ETM 5283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5291 Failure Mode and Effects Analysis in Design
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: A design technique for reducing risk and improving reliability of a system, design or process. Potential failures in any of these studied methodically during design. The concepts, tools and techniques applicable to any product or process. Previously offered as ETM 5291.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5311 Value Engineering
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: The application of Value Engineering (also known as Value Analysis, Value Methodology) to improve customer value for a project, process, or product during or after engineering design. The development of VE, its objectives, definitions and methodologies, the use of the VE system, and its range of application. VE's use for improving performance reducing life cycle cost. Previously offered as ETM 5311.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5341 Leadership Strategies for Technical Professionals
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Leadership strategies, principles, styles and dynamics that must be understood by technical professionals engaged in the creation of products, processes, and services in technology-based organizations. Previously offered as ETM 5341.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5351 Planning Technical Projects
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Techniques and tools for project definition, staffing, scheduling, resource allocation, and time estimation. Behavioral and quantitative dimensions of project management. Performance measures of project progress and completion. Previously offered as ETM 5351.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5361 Managing Virtual Project Teams
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: The management and group issues inherent in the application and implementation of effective teamwork in virtual work-spaces. The appropriate use of virtual team issues and challenges associated with effective teamwork; virtual team structures, process, and technology facilitation skills; group dynamics; and team motivation. Previously offered as ETM 5361.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5371 Ethics for Practicing Engineers
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: A values-based approach to professional ethics and its application to the decision-making in a technology-intensive environment. Ethical concerns related to the expectations of stakeholders. Previously offered as ETM 5371.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5391 New Product Introduction and Commercialization
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Elements of the new product introduction (NPI) process and its impact on business strategy and planning. Organizational resources required for NPI and tools for determining commercial viability. Previously offered as ETM 5391.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5413 Engineering Economic Analysis
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: Basic concepts of time, value of money and discounted cash flow analysis. Quantitative evaluation of investment alternatives. Basis for comparison of alternatives, including present worth, savings investment ratio, rate of return and payback period methods. Decision making among capital constrained and unequal life projects. Introduction to taxes and depreciation. Previously offered as ETM 5411.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5461 Intellectual Property Management
Prerequisites: Admission to MSEM program or consent of instructor.
Description: Overview of intellectual property law and management of intellectual property. Exploration of ways to manage intellectual property from conception through production and licensing. Types of intellectual property and associated legal issues and management processes. Previously offered as ETM 5461.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5471 Introduction to System Safety
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: System safety as a discipline in research, development and acquisition of systems, sub-systems and components. The history and methodologies of mishap prevention including the development of system safety management and engineering processes. Previously offered as ETM 5471.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5481 Sustainable Enterprise Strategies
Prerequisites: Admission to the MSEM program or consent of instructor.
Description: The principles of sustainability in the context of industrial enterprises. The implications of sustainability in design of products, industrial systems and infrastructure. The importance of life cycle cost analysis as a key engineering economy tool. Previously offered as ETM 5481.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5491 ISO 9000
Prerequisites: Admission to the MSEM program or departmental permission.
Description: A detailed look at the requirements of ISO 9001:2008 from a systems perspective. The relationship between ISO 9001, ISO 9000, ISO 9004 and industry-related standards. Implementation and improvement of quality management systems (both high quality and typical methods). Previously offered as ETM 5491.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5511 Capstone Preparation
Prerequisites: Admission to the MSEM program and at least 17 hours earned toward MSEM degree or departmental permission.
Description: Introduction to the requirements for the EM Capstone Project, including problem statements, strategic implications, management systems, and problem metrics. Emphasis is placed on persuasive technical communication. Previously offered as ETM 5511.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5521 Quick Response Manufacturing
Prerequisites: Admission to the MSEM program or departmental permission.
Description: Introduction to QRM, an enterprise-wide strategy for lead-time reduction. Discussion of the four core concepts of QRM - realizing the power of time, rethinking organizational structure, understanding and exploiting systems dynamics, and implementing a unified strategy enterprise-wide. Definitions of manufacturing critical-path time (MCT) map. Focused target market segment (FTMS), and material control strategy POLCA. Case studies and MPX software. Previously offered as ETM 5521.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5531 Contract Law in Engineering and Technology
Prerequisites: Graduate standing.
Description: This course will provide engineers and architects with a background in common law as it applies to contracts. Topics will include concepts such as offer, acceptance, consideration and breach; contracts under the Uniform Commercial Code; express and implied warranties; and employment contracts. Previously offered as ETM 5531.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

EM 5943 Lean Sigma Implementation
Prerequisites: IEM 5113, admission to the MSEM program or departmental permission.
Description: Introduction to the implementation skills necessary to successfully apply lean manufacturing and six sigma concepts and manage continuous improvement within a small to mid-sized firm. Successfully combining leadership, organizational dynamics, and skills in meeting customer expectations. Planning, applying, and monitoring these learned skills. Previously offered as ETM 5943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

Engineering Science (ENSC)

ENSC 2113 Statics
Prerequisites: Either MATH 2133 or MATH 2144 and either PHYS 1114 or PHYS 2014 with grades of "C" or better.
Description: Resultants of force systems, static equilibrium of rigid bodies, statics of structures, and fluid statics. Shear and moment diagrams.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering

ENSC 2123 Elementary Dynamics
Prerequisites: ENSC 2113 with a grade of "C" or better.
Description: Kinematics and kinetics of particles, systems of particles, and rigid bodies from a Newtonian viewpoint using vector algebra and calculus. Work-energy and impulse-momentum principles. Planar and three-dimensional kinetics and kinematics of rigid bodies.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering

ENSC 2141 Strength of Materials Lab
Prerequisites: Concurrent enrollment in ENSC 2143 or GENT 3323 or permission of the instructor.
Description: Study the sensing, conditioning and acquisition of load, deformation and strain data and the inference of stress. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. Perform material tensile tests and acquire stress and strain data. Study the behavior of engineering materials in service and failure. Operate 3D printers and mills to manufacture samples and structures for testing. Test engineered designs of beams, pressure vessels, truss and frames structures, etc. to failure and compare to design predictions from ENSC 2143. Preparation of formal reports, including the presentation of plots, figures and table.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Dean of Engineering

ENSC 2143 Strength of Materials
Prerequisites: ENSC 2113 with grade of "C" or better.
Description: Bending moments, deformation and displacement in elastic and plastic deformable bodies. Axial, torsional and shear loads. Buckling stress transformations and combined loads.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering

ENSC 2213 Thermodynamics
Prerequisites: A grade of "C" or better in CHEM 1314, CHEM 1414 or CHEM 1515, MATH 2144, PHYS 2014.
Description: Properties of substances and principles governing changes in form of energy. First and second laws.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering

ENSC 2411 Electrical Science Lab
Prerequisites: ENSC 2613 or concurrent enrollment in ENSC 2613 or permission of instructor.
Description: Laboratory providing hands-on experience with engineering topics related to Electrical Science. May not be used for degree credit with ENSC 2611.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Dean of Engineering

ENSC 2611 Electrical Fabrication Lab
Prerequisites: ENSC 2613 or concurrent enrollment in ENSC 2613 or ECEN 2714 or concurrent enrollment in ECEN 2714 or permission of instructor.
Description: This course will cover electrical fabrication techniques including schematic capture, printed circuit board layout, circuit board milling, cabling, heat sinks, soldering and package design. An emphasis on a hands-on experience with modern PCB fabrication tools and equipment will be central to this course.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Dean of Engineering

ENSC 2613 Introduction to Electrical Science
Prerequisites: MATH 2153.
Description: Elements of electrical engineering; AC and DC circuits, mesh and node formulation of network equations, steady-state response to sinusoids, energy, power and power factor.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering

ENSC 3231 Fluids and Hydraulics Lab
Prerequisites: Concurrent enrollment in ENSC 3233 or MET 3313 or FPST 2483 or MAE 3333 or permission of instructor.
Description: Laboratory providing hands-on experience with standard measurement techniques of fluid mechanics and their applications. Develop and conduct appropriate experimentation, analyses and interpret data to draw conclusions using engineering judgment. Comparison of analytical models introduced in an introductory fluid mechanics course to the actual behavior of real fluid flows. Preparation of formal reports, including the presentation of plots, figures, and tables.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Dean of Engineering

ENSC 3233 Fluid Mechanics
Prerequisites: ENSC 2113 and MATH 2153 with a grade of "C" or better.
Description: The study of fluid properties, statics, conservation equations, dimensional analysis and similitude, viscous flow in ducts, inviscid flow, boundary layer theory, open channel flow, turbomachinery and fluid measurement techniques.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Engineering

ENSC 3311 Material Science Lab
Prerequisites: Minimum grade of "C" in ENSC 3313 or MET 3343 or concurrent enrollment in both; or permission of department.
Description: The study of fluid properties, statics, conservation equations, dimensional analysis and similitude, viscous flow in ducts, inviscid flow, boundary layer theory, open channel flow, turbomachinery and fluid measurement techniques.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Dean of Engineering

ENSC 3313 Materials Science
Prerequisites: CHEM 1314 or CHEM 1414 or CHEM 1515.
Description: Introductory level. Relationship between structure and properties of materials and engineering applications. Atomic, microscopic and macroscopic properties.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Engineering

ENSC 3431 Thermodynamics and Heat Transfer Lab
Prerequisites: Concurrent enrollment in ENSC 2213 or MET 3433 or MAE 3233 or MET 3453 or MET 4433 or permission of the instructor.
Description: Laboratory providing hands-on experience with engineering topics related to fundamental principles of Thermodynamics and Heat Transfer.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Dean of Engineering

English (ENGL)

ENGL 0003 Academic English for Graduate Students
Description: Study and practice of English listening, reading and speaking skills required for graduate study. Graded on satisfactory-unsatisfactory basis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 1010 Studies in English Composition
Description: Special study in composition to allow transfer students to fulfill general education requirements as established by Regent's policy. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: English

ENGL 1113 Composition I
Description: The fundamentals of expository writing with emphasis on structure, development and style.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour, Cowboy Concur OL Res Tuition fee of $189.10 per credit hour, and STW HS Concurrent Enroll Tuit fee of $189.10 per credit hour apply.

ENGL 1123 International Freshman Composition I
Description: Restricted to students whose native language is not English. Expository writing with emphasis on structure and development. Special attention to problems of English as a second language. This course may be substituted for ENGL 1113. Previously offered as ENGL 1013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 1143 Talking Tech: Language, AI, and the Digital World
Description: How do voice assistants, chatbots, and translation apps work? This course explores the fascinating world of talking tech—the intersection of language and technology. Students will learn how the study of language fuels breakthroughs in tech and how computational challenges reshape how language is studied. By examining real-world applications, the course introduces key concepts in language and computation while highlighting their impact on communication in a digital age.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 1213 Composition II
Prerequisites: ENGL 1113 or ENGL 1123 or ENGL 1313.
Description: Expository composition with emphasis on technique and style through intensive and extensive readings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

ENGL 1223 International Freshman Composition II
Prerequisites: ENGL 1113 or ENGL 1123.
Description: Restricted to students whose native language is not English. Expository composition with emphasis on technique and style in writing research papers. May be substituted for ENGL 1213. Previously offered as ENGL 1033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 1313 Critical Analysis and Writing I
Description: Expository writing forms, including summary, critique, and synthesis. Writing assignments based on readings from across the curriculum. May be substituted for ENGL 1113 for gifted writers who seek a more challenging course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 1413 Critical Analysis and Writing II
Description: Critical thinking, research, and writing skills necessary for success in courses across the curriculum. Some sections available for honors credit. May be substituted for ENGL 1213 for gifted writers who seek a more challenging course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 1923 Classics Old and New (H)
Description: What's on your list of must-read books? In this course, you'll get to dive deep into some of the most celebrated (and controversial) works of literature in a small, discussion-based class. Guided reading, short writing, and creative activities designed to spark your literary curiosity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 2233 Writing as a Profession (H)
Description: An overview of genres and styles of writing in professional contexts, including organizations, science and industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 2243 Language, Text and Culture (GH)
Description: Investigation of how human language relates to culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ENGL 2253 Theory and Practice of Digital Studies
Description: Introduction to digital studies including historical, cultural, and technological contexts. Students will produce digital projects interrogating issues and challenges of digital cultures including webpages, podcasts, and infographics. No prior computer experience needed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 2393 Popular Fiction (H)
Description: Readings in several related popular genres of fiction such as science fiction, fantasy, horror, romance, crime fiction, Westerns, graphic novels, comics, and/or fan fiction. Small, discussion-based classes investigate how contemporary popular fiction depicts diverse experiences and identities and engages different communities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 2413 Exploring Literature (DH)
Description: Readings from a wide range of literature depicting diverse experiences and identities. Class discussions cover literary forms and meanings, along with the imaginative depictions of different communities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures
Additional Fees: Individ Study Tuition and fee of $189.10 per credit hour applies.

ENGL 2443 Languages of the World (GS)
Description: A comprehensive survey of world languages. The essential structural and historical organization of languages. The process of languages as a basic human function. Same course as FLL 2443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: International Dimension, Society & Human Behavior

ENGL 2453 Introduction to Film and Television (H)
Description: Introduction to the formal analysis of moving images - film, television, and new media - in aesthetic, cultural, and political contexts. Students discuss and write about films and other moving images screened in class.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 2513 Introduction to Creative Writing (H)
Description: Literary composition with emphasis on techniques and style through readings and writings in fiction, poetry and creative nonfiction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour, Cowboy Concur OL Res Tuition fee of $189.10 per credit hour, and STW HS Concurrent Enroll Tuit fee of $189.10 per credit hour apply.

ENGL 2543 Survey of British Literature I (H)
Description: The beginnings through the Neo-Classic Period.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 2653 Survey of British Literature II (H)
Description: The Romantic Period to the present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 2773 Survey of American Literature I (H)
Description: The Puritans through the Romantic Period.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures
Additional Fees: Individ Study Tuition and fee of $189.10 per credit hour applies.

ENGL 2883 Survey of American Literature II (DH)
Description: The Romantic Period to the present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures
Additional Fees: Individ Study Tuition and fee of $189.10 per credit hour applies.

ENGL 2890 Honors Experience in English
Prerequisites: Honors Program participation and concurrent enrollment in a designated ENGL course.
Description: A supplemental Honors experience in English to partner concurrently with designated English course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Honors Credit

ENGL 2963 Survey of Postcolonial and Indigenous Literatures (GH)
Description: Introduction to the literature of the indigenous people and postcolonial nations of the world. Previously offered as ENGL 3173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ENGL 3030 Writing the Short Story (F)
Description: This workshop will focus on the creative process of writing original short stories. Because this class focuses on writing and the creative process, we will examine our own work and the work of published fiction writers. The type, form, and audience of short stories covered in this class will vary. Previously offered as ENGL 3033. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3040 Poetry Writing: Free Verse and Formal (F)
Description: This workshop will focus on the creative process of writing original free verse and formal poetry. Because this class focuses on writing and the creative process, we will examine our own work and the work of published poetry writers. The type, form, and audience covered in this class will vary. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3060 Writing Flash Nonfiction (F)
Description: Students write and workshop original creative nonfiction in the flash nonfiction form and read and discuss published flash nonfiction to learn and practice craft techniques of this short and dynamic genre. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3063 Introduction to Linguistics: Exploring Human Language
Description: Introduction to the study of how languages work and how they're used. Looks at speech sounds, how words are formed, the structure of phrases and sentences, the use of language in interaction. Considers English and other languages of the world. Same course as ENGL 4063. May not be used for degree credit with ENGL 5143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3073 Film Production
Description: An overview of film production introducing students pre-production; the basics of on-set production; and the mechanics of camera operation and editing software.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3083 Global Approaches to Ecological Storytelling (G)(H)
Description: This writing course focuses on the development, practice, traditions, concerns, and characteristics of ecological writing through a collaboration of global scientific research, international observation, and respectful empathic cultural communication through narrative. With collaboration among critical thinkers and narrative writers, we can combine the power of storytelling with scientific rigor to convey complex ideas about global biodiversity loss.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ENGL 3113 Science, Literature, and Culture (H)
Description: This course provides students with opportunities for critical reading, thinking, discussion, and writing about the physical and life sciences, their history, and the cultural roles they play, especially in relation to literature. This course is structured as a general survey of the social and cultural study of science, examining major works in the history, philosophy, and sociology of science in conjunction with major works of English-language literature that engage directly with the sciences. Same course as AMST 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 3123 Mythology (H)
Description: Myths, their cultural context, and their place in world literature. Same course as LATN 3123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 3133 Readings in Multi-Ethnic American Literature
Description: Literature by American writers of diverse ethnicities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3143 Readings in Postcolonial Literature (GH)
Description: Literature in English by writers from parts of the world once colonized by the West.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ENGL 3153 Readings in Literature by Women (DH)
Description: The collection of literature written by women in England and America, classical and modern figures. Previously offered as ENGL 4773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

ENGL 3163 Literatures of the Ancient World (H)
Description: Readings and topics in the cultures and literatures of the ancient world. Same course as LL 3163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 3170 Readings in Literature and Other Disciplines
Description: A study of literature and its historical or thematic connections to one or more of the fine arts or disciplines in the humanities or social sciences. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3183 Native American Literature (DH)
Description: Origins and development of a literary tradition in its historical and cultural context.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

ENGL 3190 Readings in Postcolonial and Multiethnic Literature
Description: Principal literary and critical texts written in English either by writers from parts of the world once colonized by the West or by American writers of different ethnic origins whose work bridges cultures. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3193 African-American Literature (DH)
Description: Origins and development of a literary tradition in its historical and cultural context.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

ENGL 3200 Special Problems in Language and Literature
Prerequisites: 9 credit hours of English.
Description: Specialized readings and independent study. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: English

ENGL 3203 Advanced Composition
Prerequisites: 9 hours of English.
Description: An advanced writing course based on contemporary theories of composition.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3223 Professional Writing Theory
Description: Major theories, issues and methodologies in professional writing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3243 Literary Theory and Criticism
Description: Study of the major works of critical theory and literary criticism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3263 Film & TV Criticism
Description: An inquiry into the major concepts and debates of mass-media theory. Issues addressed include the nature of the relation between images and reality; the psychological and cultural significance of style in film, television, and new media representations; and the role that mass-media play in the organization of social and political relations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3273 YouTube and Online Communities (H)
Description: This course offers a critical assessment of the video-sharing platform YouTube. Course readings and written assignments emphasize the aesthetics and industrial practices of the platform. Topics include genres of content creation, the creator economy, influencer culture, content moderation and community guidelines, copyright infringement and relation to legacy media, disinformation and conspiracy theories, and political radicalization.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 3293 Media and the Environment (H)
Description: This course examines the relationship between media industries and the natural environment. Topics covered include depictions of non-human nature (animals and plants), representations of climate change, sustainable media production, and media's relation to extractive industries and energy production.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 3323 Technical Writing
Prerequisites: ENGL 1113 or ENGL 1213 or ENGL 1313 and junior standing.
Description: Applied writing in areas of specialization. Intensive practice in professional/technical writing genres, styles, research techniques and editing for specialized audiences. This course may be substituted for ENGL 1213 with an "A" or "B" in ENGL 1113 and consent of the student's college.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
Additional Fees: Individ Study Tuition and fee of $189.10 per credit hour applies.

ENGL 3333 Short Story (H)
Description: Origins, development, theory and craft of the short story.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures
Additional Fees: Individ Study Tuition and fee of $189.10 per credit hour applies.

ENGL 3343 Reading Poetry
Description: This course in poetic literacy will introduce students to the major poetic forms, to changes in aesthetics of poetry over time, to figurative language, to prosody, to the particular interpretative skills required to understand and write about the genre.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3353 Film and Literature
Description: A study of film and literature in relation, whether by way of adaptation studies, the distinct "grammars" of images and language, or the emergence of film and literary forms alongside each other in aesthetic movements.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English

ENGL 3363 Readings in Drama (H)
Description: Close study of representative plays of various periods (for example, Classical, Renaissance, Restoration, Modern, and others) and of the main formal categories (tragedy, comedy).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 3373 Readings in Nonfiction
Description: Theory and practice of creative nonfiction in English, including autobiography, travel writing, literary journalism, correspondence and the essay.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3383 Readings in Narrative
Description: Readings in narrative of different periods and different genres.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3410 Readings in Popular Fiction
Description: Historical study of a popular fictional genre's development. Course content varies by semester; individual courses may focus on science fiction, fantasy, detective fiction, the Western, horror and the Gothic, romance, graphic novels, or other popular narrative categories. Exploration of the characteristics and evolution of the genre while developing skills in reading, writing and thinking critically. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3413 Science Fiction (H)
Description: This course will survey the development of science fiction literature as a genre, focusing on major figures and important topics from its beginnings to the contemporary scene. In examining the evolution of science fiction storytelling, we will also investigate how science fiction both reflects and influences broader historical and cultural changes in the 19th, 20th and 21st centuries. Same course as AMST 3413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 3433 Introduction to Television Studies (H)
Description: A focused examination of one aspect of television culture, technology, history and/or style. While the particular topics to be considered vary, and include everything from TV genres to TV theories, in each instance the course gives students an in-depth understanding of how television shapes the social and political world in which we live. Previously offered as ENGL 3430.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 3440 Studies in Film Genre
Description: A comparative study of types of films both inside the Hollywood system and in other national cinemas. The western, the film noir and the musical, as well as genres from such countries as France, Germany and Japan. Focused knowledge of selected genres, a sense of the economic imperatives that necessitate generic "contracts" between film producers and viewers and knowledge of the history of specific genres. Previously offered as ENGL 3443. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English

ENGL 3453 History of American Film (H)
Description: Examines the history of cinema in the U.S. from its beginnings until the present, addressing such issues as: the origins of cinema, the coming of sound, American film genres, the Hollywood studio system, censorship, the challenge of television, the new American cinema of the 1970s, the politics of independent film production, and the rise of computer-generated imagery.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 3463 History of International Film (GH)
Description: Introduction to the history of international cinema and the principal eras in film history, focusing on the moments when different national cinemas flourished.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

ENGL 3473 Race, Gender, and Ethnicity in American Film (D)
Description: A survey of race, gender, and ethnicity as they have been represented in American films. Same course as AMST 3473.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English
General Education and other Course Attributes: Diversity

ENGL 3483 Screenwriting
Description: Introduction to the craft of screenwriting. Students will write and workshop their own screenplays and treatments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 3503 Television and American Society (DH)
Description: Examination of television within the social and cultural context of the U.S. Looks at the aesthetic and industrial practices that shape representation on TV and the effects of those practices, particularly for socially disempowered groups. Same course as AMST 3503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

ENGL 3813 Readings in the American Experience (DH)
Description: Life in the New World from the colonial to the postmodern era using a multiplicity of interdisciplinary texts that demonstrate the emergence and ongoing evolution of distinctive American identities. Same course as AMST 3813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

ENGL 3890 Advanced Honors Experience in English
Prerequisites: Honors Program participation and concurrent enrollment in a designated ENGL course.
Description: A supplemental advanced honors experience in English to partner concurrently with designated upper-division English course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Honors Credit

ENGL 3903 Writing Center Theory and Practice
Prerequisites: Six hours English or consent of instructor.
Description: Writing center research with practical applications in writing instruction.
Credit hours: 3
Contact hours: Lecture: 3 Lab: 4 Contact: 7
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English

ENGL 3933 Shakespeare (H)
Description: Recurring themes and their variations in Shakespeare's work. Nature of these genres in the period and Shakespeare's innovations. The structure and language of the plays, occasional examination of historical documents and contexts, modern performances, and critical essays.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 4003 History of the English Language
Description: The growth of the English language.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4013 English Grammar
Description: The traditional terminology and concepts of English grammar leading or evolving into the several current systems of description. May not be used for degree credit with ENGL 5130.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4033 Discourse Analysis
Description: Introduction to the analysis of the language used in spoken and written discourse contexts in a variety of genres. May not be used for degree credit with ENGL 5340.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4043 Teaching English to Speakers of Other Languages
Description: Designed to develop the skills and techniques needed in teaching English to speakers of other languages (TESOL). Examines the theoretical issues behind the practice and methodologies and classroom techniques, including the testing of English and the selection and preparation of teaching materials.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4053 Film Directing
Description: An overview of film direction introducing students to the dramatic elements of film production and best practices for working with cast and crew by way of hands-on experience of film directing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4073 Introduction to Sociolinguistics
Description: The study of how languages and varieties vary in social contexts and how they are regarded. Same course as CDIS 4073. May not be used for degree credit with ENGL 5173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4080 Studies in Linguistics
Description: Study of a topic in linguistics, chosen at the instructor's discretion. May not be used for degree credit with ENGL 5140 or ENGL 6410. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4083 Applied Linguistics
Description: Introduction to the applied study of language in use, including aspects of discourse, power, identity, and language choice among other topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4093 Language in America (DS)
Description: Historical development of American English. Regional, social and cultural language differences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Society & Human Behavior

ENGL 4100 Studies in Medieval British Literature
Description: Special topics encompassing the many different ethnic traditions and genres found in medieval British literature. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4110 Studies in Early Modern Literature
Description: Special topics encompassing the many different traditions and genres found in 16th-17th century British literature. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4130 Studies in 18th Century British Literature
Description: Selected topics in British literature from 1660-1800. Various writers and their works and themes and literary developments of the period. Topics vary by semester. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4143 Language and Technology
Description: Introduction to the use of linguistic knowledge in computer applications today. How the study of language has contributed to the advancement of technology and how certain computational problems have influenced the way linguists study language.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4160 Studies in 19th Century British Literature
Description: Exploration of the literary culture of nineteenth-century Britain. Topics might range from romantic poetry to the Victorian novel. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4170 Studies in 20th Century British Literature
Description: Various topics focusing on the literature and culture of Britain and Ireland, such as 20th century British and Irish fiction, poetry, or drama; The City; The Irish Renaissance. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4180 Internship in TESL
Prerequisites: ENGL 4043 or CIED 4133 or permission from instructor. Note: CIED 4133 (formerly EDUC 4110) has been submitted for approval for a name change.
Description: This internship is designed to provide instructional support and professional mentoring for students seeking the undergraduate certificate in TESOL (Teaching English to Speakers of Other Languages). Previously offered as ENGL 4173. Offered for variable credit, 3-4 credit hours, maximum of 4 credit hours.
Credit hours: 3-4
Contact hours: Contact: 3-4 Other: 3-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: English

ENGL 4183 Forensic Linguistics
Description: This course is a survey of linguistics analysis in legal contexts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4200 Studies in Early American Literature
Description: Readings and topics in early American literature and culture. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4210 Studies in 19th Century American Literature
Description: Themes in 19th century American literature with attention to social and cultural contexts. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4220 Studies in 20th Century American Literature
Description: Topics focusing on the literature and culture of the United States, such as 20th century American fiction, poetry, or drama; alienation and activism; the impact of science and technology. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4223 Introduction to Old English
Description: The basics of pronunciation, vocabulary, and grammar, enabling students to read short works in prose and poetry. Previously offered as ENGL 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4230 Literature of Diversity
Description: Readings on topics such as gender, race, ethnicity, sexuality, disability, and class. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4263 Moving Image Aesthetics (H)
Description: A historical and theoretical examination of the stylistic and affective dimension of moving images, including questions of beauty and ugliness, cuteness and the graphic, enjoyment and disgust, high and low culture. Screenings will vary from semester to semester, but may include examples of realism, lo-fi production, prestige pictures, documentary, music videos and cult cinema, and will include material from both American and international contexts.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

ENGL 4300 Studies in Romanticism
Description: Principle works of Romanticism, reflecting the cultural, social, and political developments. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4310 Studies in Modernism
Description: Selected topics in literature of the early twentieth century. Texts and themes will vary by semester. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4320 Contemporary Literature
Description: Studies and topics in contemporary literature. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4333 Studies in Native American Literature
Description: Readings and topics in Native American Literature and culture. Previously offered as ENGL 4330.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4340 Studies in Postcolonial and Multi-ethnic Literature
Description: Readings and topics in postcolonial literature and culture or multiethnic literature and culture. Offered for variable credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4350 Contemporary International Cinema
Description: Examines major trends in contemporary international cinema of the last fifteen years. National cinema may include France, Germany, Italy, Spain, Sweden, China, Taiwan, India, South Korea, and Russia, amongst others. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English

ENGL 4400 Studies in Regional Literature
Description: Literature of a nation such as Ireland or Canada, or of a region such as the American Southwest. Topic varies by semester. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4450 Culture and the Moving Image
Prerequisites: ENGL 2453.
Description: An advanced class that examines in-depth the relation between moving images and a particular cultural phenomenon, including mass media and the production of violence, the moving image as common culture, television and the construction of domestic life, to name only a few possibilities. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English

ENGL 4513 Literary Art in the Bible
Description: This course will explore literary devices (foreshadowing, allegory, symbolism, etc) and how they are implemented in biblical texts. The Bible will be the primary focus, but comparative texts will be used to build an understanding and recognition of literary devices. We will examine the texts and their history on their own terms, rather than promote a particular religious or non-religious viewpoint. Same course as REL 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4520 Problems in English
Prerequisites: 12 credit hours of English.
Description: Specialized readings and independent studies. May not be used for degree credit with ENGL 5990. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: English

ENGL 4523 Professional Writing Internship
Prerequisites: ENGL 4543 and ENGL 4553 or permission of instructor.
Description: Supervised work-and-learning experience in writing, editing, document design, and research in the workplace. May not be used for degree credit with ENGL 5520.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4530 Studies in Professional Writing
Prerequisites: Six credit hours of English.
Description: Selected topics in professional writing, focusing on a particular theme, issue or theoretical approach. Previously offered as ENGL 4533. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours. May not be used for degree credit with ENGL 5560.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4543 Style and Editing
Description: An intensive study of writing style and editing from the sentence level (including diction and grammatical arrangement) to the levels of genres of communication. Writing assignments on style for different audiences. May not be used for degree credit with ENGL 5593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4553 Visual Rhetoric and Design
Description: Major theories, issues, and methodologies in visual rhetoric and design. Practice of theory through guided composing work. May not be used for degree credit with ENGL 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4573 Games and Writing
Description: Major theories, practices, and methods of digital and procedural rhetorics. Students will study, analyze, and design games, with special emphasis on how they make persuasive appeals through software and code.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4583 Writing for the Public
Description: Examination and practice of writing for varied publics. Students will produce projects grounded in public advocacy, nonprofit, and/or community sites situated in local, national, and/or web spaces.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4593 Writing Across the Disciplines
Description: A course that explores writing in multiple disciplinary contexts and the complexities that come with entering a particular academic discourse community. We will examine writing in STEM, the social sciences, and the humanities and analyze the ways in which writing in these disciplines changes and adapts. This course aims to help students understand different rhetorical moves made in discipline-specific writing and how this knowledge transfers to their own writing abilities and growth.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4600 Studies in Chaucer or Milton
Description: Various topics focusing on the works of Chaucer or Milton. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4620 Creative Nonfiction: Writing Memoir and the Personal Essay
Description: Students learn and practice the specialized craft techniques of creative nonfiction by writing and workshopping original memoirs and personal essays and reading and discussing published memoirs and personal essays. Previously offered and same course as ENGL 4460. May not be used for degree credit with ENGL 5720 or ENGL 6160. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4630 Writing the Novel
Description: Students will actively participate in a lively workshop environment focusing on the creative process of writing original novels. The types, forms, and audience of novels covered in this course will vary. Because this class focuses on writing and the creative process, we will examine our own work and the work of published novelists. Previously offered as ENGL 4633. May not be used for degree credit with ENGL 5730 or ENGL 6130. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4640 Poetry Writing: Lyric and Narrative
Description: Students will actively participate in a lively workshop environment focusing on the creative process of writing lyric and/or narrative poetry. The types, forms, and audience of poems covered in this course will vary. Because this class focuses on writing and the creative process, we will examine both student work and the work of published poets. Previously offered as ENGL 4643. May not be used for degree credit with ENGL 5740 or ENGL 6140. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4700 Single Author or Work Pre-1800
Description: Study of a single author or work prior to 1800 along with supporting literature. Chosen at the instructor's discretion. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4710 Single Author or Work Post-1800
Description: Study of a single author or work after 1800 along with supporting literature. Chosen at the instructor's discretion. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

ENGL 4723 Studies in Shakespeare (H)
Description: Focus on advanced topics in major plays and selected criticism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures
Additional Fees: Individ Study Tuition and fee of $189.10 per credit hour applies.

ENGL 4993 Senior Honors Thesis
Prerequisites: Admission to Arts and Sciences Honors Program and 3.50 cumulative GPA. For Honors students in their final semester.
Description: Thesis written on a topic of student's choice and directed by a faculty member. Final approval of thesis requires oral defense.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Honors Credit

ENGL 5000 Master's Thesis
Description: MA thesis. Offered for variable credit, 1-9 credit hours, maximum of 12 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: English

ENGL 5013 Introduction to Graduate Studies
Description: Principles and procedures in scholarly research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5063 Seminar in Shakespeare
Description: Intensive study of a limited number of plays. Assignment of problems to individual students.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5093 Seminar in Milton
Description: Poetry, major prose and criticism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5120 Studies in Teaching English as a Second Language
Description: Selected topics in teaching English as a second language; e.g. cross-cultural communication, materials preparation, bilingual education. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: English

ENGL 5123 Approaches to Language Acquisition
Description: An overview of theories of first and second language acquisition.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5130 Studies in English Grammar
Description: Selected study of current topics in grammatical theory as it applies to the teaching of English. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5133 Phonetics and Phonology
Description: Exploration of fundamental aspects of the use of sound in human language.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5140 Seminar in Linguistics
Description: Selective study of current topics in linguistics. May not be used for degree credit with ENGL 4080. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5143 Descriptive Linguistics
Description: An introduction to phonology, morphology, syntax and semantics. May not be used for degree credit with ENGL 4063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5153 Syntax
Description: The study of the principles and rules for constructing phrases and sentences in natural languages.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5163 Middle English Literature
Description: Major works in Middle English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5173 Sociolinguistics
Description: Introduction to linguistic change and variation in speech communities, focusing on the methods of data collection and analysis. May not be used for degree credit with ENGL 4073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5183 Acoustic Phonetics
Description: An introduction to acoustic phonetics. Students will learn basic principles of the acoustics of speech sounds, develop practical skills in instrumental measurement, and learn how acoustic data can answer questions about sounds and sound patterns in language.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5201 Writing Center Theory and Pedagogy
Description: The study of writing center theory and practice with the goal of application to one-to-one pedagogy.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5210 Sem or Directed Study
Description: Specialized readings or independent studies. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: English

ENGL 5213 Composition Theory and Pedagogy
Description: The study of methods and materials for effective one-to-one and one-to-many teaching.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5223 Professional Writing Theory and Pedagogy
Description: The study of the needs of students in technical and professional writing service courses, major approaches to teaching professional writing, and the genres often taught in professional writing service courses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5243 Teaching English as a Second Language
Description: Materials and methods of second language instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5313 Internship, Teaching English as a Second Language
Description: Supervised teaching of beginning through advanced English as a second language courses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5333 Second Language Assessment
Description: Introduction to the fundamental principles of second and foreign language assessment, including theories of language testing and practical aspects of developing and using language tests. Topics include test design, construction, administration and scoring, psychometric and measurement concepts, basic statistics, as well as test analysis and reporting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5340 Studies in Discourse Analysis
Description: Selected topics in the study of language in use in spoken or written contexts. May not be used for degree credit with ENGL 4033. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5353 Studies in the History of Rhetoric
Description: An exploration of selected topics and texts in the history of Western and non-Western rhetoric from the classical period to the present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5360 Seminar in Screen Studies
Description: The exploration of key aesthetic issues of analysis and evaluation as they pertain to film criticism. Previously offered as ENGL 5463. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English
Additional Fees: English Film, Video fee of $10 applies.

ENGL 5363 Critical Approaches to Screen Studies: Theory and History
Description: Designed to provide students with an overview of fundamental theoretical and historical scholarship in film and television studies.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English

ENGL 5370 Studies in Television and New Media
Description: Exploration of aesthetic, cultural, and ideological aspects of television and new media in the United States and abroad. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English

ENGL 5410 Seminar in British Literature of the 16th Century
Description: Selected writers and their works, themes and literary developments of the 16th century. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5420 Seminar in British Literature of the 17th Century
Description: Selected writers and their works, themes and literary developments of the 17th century. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5440 Seminar in British Literature of the 18th Century
Description: Selected writers and their works, themes and literary developments of the 18th century. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5460 Seminar in British Literature of the 19th Century
Description: Selected writers and their works, themes and literary developments of the 19th century. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5480 Seminar in Modern Literature
Description: Selected writers and their works, themes and literary developments of modern literature. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5520 Internship in Professional Writing
Prerequisites: Permission of department.
Description: Supervised work-and-learning experience in writing, editing, document design, and research in the workplace. May not be used for degree credit with ENGL 4523. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5523 Genres in Professional Writing
Description: The study of the current status of genre in professional writing theories and its crucial role in professional writing practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5553 Studies in Visual Rhetoric and Design
Description: Advanced study of design and visual rhetorical theory. Practice of theory through guided composing work. May not be used for degree credit with ENGL 4553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5560 Seminar in Professional Writing
Description: Advanced study of selected theories, themes, methods, debates, and developments in professional writing. May not be used for degree credit with ENGL 4530. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5583 Environmental Writing
Description: Consideration of the historical, political, cultural, and ethical contexts of modern environmentalism and examination of the rhetorical strategies in several types of environmental discourse. Major writing project tailored to individual research interests and career goals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5593 Seminar in Style and Editing
Description: An advanced study of writing style and editing from the sentence level (including diction and grammatical arrangement) to the levels of genres of communication. Writing assignments on style for different audiences. May not be used for degree credit with ENGL 4543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5630 Seminar in Early American Literature
Description: Selected writers and their works, themes and literary developments of the 17th and 18th centuries. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5660 Seminar in American Literature of the 19th Century
Description: Selected writers and their works, themes and literary developments of the 19th century. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5680 Seminar in Contemporary Literature
Description: Selected writers and their works, themes and literary developments in contemporary literature. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5693 Research Writing for International Graduate Students
Description: Analysis and practice in the grammar and rhetorical structures specific to writing research papers in the disciplines. Previously offered as ENGL 4893.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5720 Seminar in Creative Nonfiction
Prerequisites: Admission to MFA or PhD in Creative Writing or consent of instructor.
Description: Writing creative nonfiction at the professional level. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5730 Seminar in Fiction Writing
Prerequisites: Admission to MFA or PhD in Creative Writing or consent of instructor.
Description: Writing fiction at the professional level. May not be used for degree credit with ENGL 4630. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5740 Seminar in Poetry Writing
Prerequisites: Admission to MFA or PhD in Creative Writing or consent of instructor.
Description: Writing poetry at the professional level. May not be used for degree credit with ENGL 4640. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5760 Craft and Forms of Prose
Prerequisites: Admission to MFA or PhD in Creative Writing or consent of instructor.
Description: Theory and practice of the prose forms. Previously offered as ENGL 5763. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5780 Craft and Forms of Poetry
Prerequisites: Admission to MFA or PhD in Creative Writing or consent of instructor.
Description: Theory and practice of the poetic forms. Previously offered as ENGL 5723. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 5990 Special Problems
Description: Topical study in various disciplines taught by faculty from the undergraduate colleges for juniors and seniors. May not be used for degree credit with ENGL 4520. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: English

ENGL 6000 Doctoral Dissertation
Description: Doctoral dissertation. Offered for variable credit, 1-9 credit hours, maximum of 30 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: English

ENGL 6130 Studies in Fiction Writing
Prerequisites: Admission to MFA or PhD in Creative Writing or consent of instructor.
Description: Individual projects in fiction. May not be used for degree credit with ENGL 4630. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: English

ENGL 6140 Studies in Poetry Writing
Prerequisites: Admission to MFA or PhD in Creative Writing or consent of instructor.
Description: Individual projects in poetry. May not be used for degree credit with ENGL 4640. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 6160 Studies in Creative Nonfiction
Prerequisites: Admission to MFA or PhD in Creative Writing or consent of instructor.
Description: Individual projects in creative nonfiction. May not be used for degree credit with ENGL 4620. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 6210 Seminar or Directed Study
Description: Specialized readings or independent studies. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: English

ENGL 6220 Seminar in Genre
Description: The development, traditions, concerns or characteristics of genre in selected texts. Major genres and subgenres considered. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: English

ENGL 6240 Studies in Literature
Description: Advanced topics in literature and literary research. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: English

ENGL 6250 Seminar in Race and Ethnicity
Description: Study of the complex representation of race and ethnicity in literature. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 6260 Studies in Literary Criticism
Description: Selected work in literary criticism, for example ancient and neo-classical, 19th century, 20th century. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 6270 Seminar in Region
Description: Study of regional literature or language variation. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 6280 Seminar in Gender
Description: Examination of gender as an analytical category in the study of literature, discourse and society. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 6350 Topics in Rhetorical Theory
Description: Study of advanced topics in rhetorical theory and research, focusing on an important scholar in the field, a specific theme, or some combination of the two. Previously offered as ENGL 6353. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 6360 Seminar in Film and Society
Description: Social conduct and value systems as they affect the role of media in culture. Previously offered as ENGL 6253. Offered for fixed credit, 3 credit hours, maximum of 12 credit hours.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: English

ENGL 6410 Topics in Linguistics
Prerequisites: ENGL 5143.
Description: Study of advanced topics in linguistic theory and research. May not be used for degree credit with ENGL 4080. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 6420 Topics in Second Language Acquisition
Prerequisites: ENGL 5243.
Description: Study of topics in second language theory and research. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

ENGL 6500 Topics in Professional Writing
Description: In-depth study of selected topics in professional writing. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

Entertainment Media (ENTM)

ENTM 3043 The World of Entertainment Media
Description: This course will introduce students to the roles of entertainment media in society, to the study of entertainment media as an academic discipline and to careers in the entertainment industry. Cannot be used for degree credit with SC 3043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 3063 Storytelling Across Screens
Description: This course introduces students to digital communications with a series of hands-on projects that incorporate multimedia tools. Students will develop basic skills in blogging, photography, videography, podcasting and web page development. Discussion will focus on effective techniques for storytelling in a changing media landscape, and exploring new approaches to traditional methods of communication. Cannot be used for degree credit with MC 2023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 3113 Graphic Design for Entertainment Media
Description: This course allows students to develop fundamental visual and graphic design theory and skills to prepare for careers in Entertainment Media and related fields. Course topics include visual design foundations, user interface foundations, and design thinking methods. Cannot be used for degree credit with SC 3753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 3443 Social Media for the Entertainment Industry
Description: The practice and application of social media such as Facebook, YouTube, Twitter, Instagram and other social networking platforms to communications practice, Cannot be used for degree credit with SC 3443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 4010 Special Topics in Entertainment Media
Description: This course introduces students to advanced current issues and topics related to entertainment media and provides an analysis of trends in entertainment media. Course content will vary to reflect changing trends and current topics related to the industry. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Lecture: 1-15 Contact: 1-15
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 4123 Entertainment Media Law
Description: The goal of this course is to introduce students to the legal rights of, and restraints on, entertainment media. Students should gain a better understanding of how to protect themselves and your future employers from libel and privacy suits; how to fight for their right to gain access to documentation; and how the First Amendment impacts their daily life. Cannot be used for degree credit with MC 4163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 4223 Ethics and Professionalism in the Entertainment Industry
Description: This course addresses the role of entertainment media as socially responsible institutions and the responsibilities of individuals operating within those systems. We will learn the tools of moral reasoning and good judgment that professionals in entertainment media need to confront the moral challenges that inevitably will arise as they pursue their role in society. Cannot be used for degree credit with MC 4143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 4443 Media Writing for the Entertainment Industry
Description: This course provides a theoretical understanding of persuasive communication as well as hands-on experience creating, writing, editing, and producing materials for the entertainment media industry. May not be used for degree credit with SC 4443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 4573 Documentary Production
Description: Student-written and produced mini-documentaries; analysis of selected programs. Cannot be used for degree credit with MMJ 4573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 4743 Entertainment Media Capstone
Description: Students complete a theoretical or applied project during the semester focusing on theoretical/methodological concerns in media and entertainment and their implications for our understanding of media in society. The course culminates in a paper/project that integrates, critiques, extends and applies knowledge gained from prior entertainment courses. Cannot be used for degree credit with SC 4743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ENTM 4990 Entertainment Media Internships
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Professional Studies

Entomology & Plant Pathology (ENPP)

ENPP 2143 Global Agricultural Biosecurity and Forensics
Description: Biosecurity, biosafety, bioterrorism, microbial forensics, emerging organisms, invasive species, quarantine, response, surveillance, detection, diagnostics, and how all system components integrate to science and to agricultural specialties, economics, and defense. Previously offered as PLP 2143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENPP 3663 Turfgrass Integrated Pest Management
Description: The biology, ecology, and identification of fungal, nematode and insect turfgrass pest. Contemporary concepts and applications of integrated control practices available for managing turfgrass pest presented along with decision-making tools for use in turfgrass pest management programs. Same course as ENTO 3663. Previously offered as PLP 3663.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 4323 Genomic Data Applications for Biosecurity
Description: A comprehensive understanding of the fundamental concepts of genetics and bioinformatics, mainly focusing on their practical applications in agricultural biosecurity. May not be used for degree credit with ENPP 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENPP 4423 Pesticide Applications
Description: Introduction of the contemporary concepts and applications of integrated control practices available for managing pests and emphasizes decision making tools for use in pest management programs based on pesticides. Concepts include equipment calibration, proper mixing equations, and proper application equations. May not be used for degree credit with ENPP 5423.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5000 Master's Research and Thesis
Description: Research for the MS degree. Offered for variable credit, 1-6 credit hours, maximum of 6 credits. Previously offered as ENTO 5000.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Entomology & Plant Pathology

ENPP 5014 Plant Virology
Prerequisites: PLP 3343 or MICR 2125 or PLNT 2013 or instructor permission.
Description: Plant viruses as causal agents of plant diseases. Taxonomy, biological, chemical, and physiological properties; transmission; host-virus and vector-virus relationships; replication; molecular virology detection, diagnosis ecology, and biosecurity. Lab; primer design for RT-PCR isothermal methods; serology. Previously offered as PLP 5013 and PLP 5014. May not be used for degree credit with MICR 5123.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5020 Special Problems
Prerequisites: Graduate standing.
Description: Selected studies in the area of entomology, acarology or araneology or Plant Pathology. Previously offered as ENTO 5020. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Entomology & Plant Pathology

ENPP 5044 Insect Morphology and Physiology
Prerequisites: ENTO 2993 Introduction to Entomology.
Description: Functions of the organ systems and demonstration of selected techniques for study of insect physiology. Offered in combination with ENTO 3044. May not be used for degree credit with ENTO 3044. Previously offered as ENTO 5043 and ENTO 5044.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5104 Mycology
Prerequisites: Graduate standing.
Description: A systematic study of the fungi, with emphasis on taxonomy, comparative morphology and fungal biology. Same course as BOT 5104 or PBIO 5104. Previously offered as PLP 5104.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5223 Ecological Methodology
Prerequisites: One course in either ecology or general biology.
Description: Use of insects and other invertebrates for describing and evaluating interactions of individuals and populations with their environments. Coverage of behavioral and physiological ecology on consequences to individuals; population and community ecology considered in dynamics of groups of organisms in ecosystems. May not be used for Degree Credit with ENTO 4223. Previously offered as ENTO 5223.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5304 Phytobacteriology
Prerequisites: PLP 3343.
Description: Bacteria as plant pathogens, with examination of the taxonomy, genetics, ecology, physiology, host-parasite interaction, and control of phytobacteria. Previously offered as PLP 5304.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5323 Genomic Data Applications for Biosecurity
Description: A comprehensive understanding of the fundamental concepts of genetics and bioinformatics, mainly focusing on their practical applications in agricultural biosecurity. May not be used for degree credit with ENPP 4323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENPP 5343 Principles of Plant Pathology
Prerequisites: PBIO 1404 or MICR 2123 or HORT 1113 or PLNT 2013.
Description: Introduction to basic principles and concepts of plant pathology, including the nature, cause and control of biotic and environmentally induced plant diseases. Offered in combination with PLP 3343. No credit for both PLP 3343 and PLP 5343. Graduate students will be expected to complete extra assignments. Previously offered as PLP 5043 and PLP 5343.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5423 Pesticide Applications
Description: Introduction of the contemporary concepts and applications of integrated control practices available for managing pests and emphasizes decision making tools for use in the pest management programs based on pesticides. concepts include equipment calibration, proper mixing equations and proper application equations. May not be used for degree credit with ENPP 4423.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5464 Insect Biology and Classification
Prerequisites: ENTO 2993 or equivalent or consent of instructor.
Description: Insect phylogeny, taxonomy, behavior, morphology and physiology in the context of ecosystem function. Major roles of insects in shaping ecosystem diversity, as indicators of environmental integrity, and as vectors of plant and animal pathogens and parasites. No credit for students with credit in ENTO 4464. Previously offered as ENTO 5464.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5484 Aquatic Entomology
Prerequisites: ENTO 2993 or instructor permission.
Description: Biology, taxonomy and ecology of insects and other invertebrates, inhabiting freshwater environments. Identification and biology of individual taxa. Roles of insects in aquatic ecology, as a forage base, and as indicators of biotic integrity of aquatic systems. May not be used for degree credit with ENTO 4484 or ZOOL 4484. Same course as ZOOL 5484. Previously offered as ENTO 5483 and ENTO 5484.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5501 Entomology For Educators
Description: Hands-on laboratory course designed to provide educators (teachers, FFA or 4H leaders, etc.) with all of the resources and background information needed to use insects as a model to teach scientific concepts. No credit given for students who have taken ENTO 3501. Previously offered as ENTO 5501.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Entomology & Plant Pathology

ENPP 5513 Biological Control
Prerequisites: ENTO 4464 or equivalent or consent of instructor.
Description: The ecological principles and applied practices of biological control of insects and weeds. Principles include the scientific basis of biological control; natural enemies and their biology; biological control methods; and biological control in invasive species and past management programs. May not be used for degree credit with ENTO 4513. Previously offered as ENTO 5512 and ENTO 5513.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5523 Integrated Management of Insect Pests and Pathogens
Prerequisites: ENTO 2993 and PLP 3344.
Description: Modern theory and practices for management of insect pest and pathogens in plant production systems, emphasizing an ecologically-based, integrated approach. Basic concepts of pest management, decision-making, cost/benefit analysis and risk/benefit analysis. Previously offered as PLP 5524 and PLP 5523 and ENTO 5523.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5623 Advanced Biotechnology Methods
Prerequisites: BIOC 3653, BIOL 3023 or equivalent or consent of instructor.
Description: Principles of biotechnology and laboratory experience with basic experimental techniques used in biochemical and molecular biological research. Previously offered as ENTO 5623.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENPP 5700 Teaching Practicum in Plant Pathology
Prerequisites: Graduate student standing.
Description: Variable credit offering for graduate students who wish to develop skills in teaching, assessment and course development working in conjunction with a primary instructor. Previously offered as PLP 5700. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Discussion
Department/School: Entomology & Plant Pathology

ENPP 5710 Advanced Medical and Veterinary Entomology
Prerequisites: ENTO 4854.
Description: Special problems in methods of disease transmission, animal parasite control and the relationships existing between parasite and host. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours. Previously offered as ENTO 5710.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Entomology & Plant Pathology

ENPP 5723 Molecular Plant-Microbe Interactions
Prerequisites: PLP 3343 and BIOC 3653.
Description: This course covers the biochemistry, molecular biology and molecular genetics of pathogenic and symbiotic interactions between microbes and plants to explain the mechanisms by which microbe's infection and activation of plant immunity and symbiosis signaling pathways. Same course as BIOC 6663. Previously offered as ENTO 5723 and PLP 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENPP 5833 Insect Molecular Biology
Prerequisites: ENTO 2993 and BIOL 3024 or equivalent or consent of instructor.
Description: Concepts and methods in molecular biology with emphasis on genetics of insects. Application of molecular techniques in insect biology. Previously offered as ENTO 5833.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENPP 5870 Scientific Presentations
Prerequisites: Consent of instructor.
Description: Preparation and delivery of scientific presentations, including 50-minute seminars, 10-minute talks, and posters. Same course as ENTO 5870. Previously offered as PLP 5870. Offered for 1 credit, max 5 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Entomology & Plant Pathology

ENPP 5923 Applications of Biotechnology in Pest Management
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and CHEM 1215 or equivalents.
Description: Applications of biotechnology in managing arthropod pests of plants, animals, plant pathogens, and weeds. Introduction to underlying technology, products being developed and deployed, effectiveness and associated problems or concerns resulting from their use. May not be used for degree credit with PLP 4923.Previously offered as PLP 5923.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENPP 5992 Career Skills and Professionalism for Scientists
Prerequisites: Graduate standing.
Description: For graduate students majoring in science-based fields, especially those nearing graduation. Skills needed for effective job application and interviewing, career development and advancement, communication with professional colleagues and the public, and personal professional development. Same course as ENTO 5992. Previously offered as PLP 5992.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENPP 6000 Research
Description: Research for the PhD degree. Previously offered as PLP 6000. Offered for variable credit, 1-12 credit hours, maximum of 36 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Entomology & Plant Pathology

Entomology (ENTO)

ENTO 2001 Introduction to Entomological Research
Description: Familiarize entomology majors with the department, faculty, and other students. Experience a broad overview of the field of entomology and how a degree in entomology can prepare you for many different opportunities and career paths.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 2003 Insects and Society (N)
Description: Influence of insects and related arthropods on human society. Current issues involving insects, society and the environment. View of insects in folklore and mythology. Basic biology and behavior of insects and use of insects as model systems for biological studies. A course for both majors and non-majors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology
General Education and other Course Attributes: Natural Science Reasoning

ENTO 2223 Insects in Global Public Health (N)
Description: Biology of diseases carried by arthropods, including their historical and societal impacts focusing on the intersection of arthropod and human biology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology
General Education and other Course Attributes: Natural Science Reasoning

ENTO 2890 Entomology and Plant Pathology Honors Add-on
Prerequisites: Honors Standing and concurrent enrollment in designated course.
Description: A supplemental introductory honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to designated course(s). Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology
General Education and other Course Attributes: Honors Credit

ENTO 2993 Introduction to Entomology (LN)
Description: Basic biology and classification of insects and closely related animals. Overview of the ecological roles of insects in both natural and managed ecosystems. Previously offered as ENTO 2992 and ENTO 2023.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

ENTO 3001 Research Skills in Entomology
Description: Introduction to research opportunities in field and laboratory entomology. Focus on literature review, hypothesis formation, and development of a grant proposal.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 3003 Livestock Entomology
Description: Economic importance, biology and control of pests affecting domestic animals. Biology of diseases carried by arthropods, including their impacts focusing on the intersection of arthropod and animal biology. Previously offered as ENTO 2091.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 3263 Pests of Agriculture, Urban, and Natural Ecosystems
Description: Biology and ecology of arthropod pests in agricultural, urban, and natural ecosystems as well as the science underlying their management; exploration of the biology, management of arthropods as both pests and beneficial species in a range of systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 3421 Horticultural Insects
Prerequisites: ENTO 2993 or concurrent enrollment.
Description: Identification, biology and control of pests attacking horticultural crops. Emphasis on pests injurious to vegetables, fruits, pecans, greenhouse plants, turf and ornamental trees and shrubs.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Entomology & Plant Pathology

ENTO 3461 Insects in Forest Ecosystems
Prerequisites: ENTO 2993 or concurrent enrollment.
Description: Identification and seasonal life history of insect pests and beneficial insects on shade trees in urban settings, in commercial forests, and in forest products.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Entomology & Plant Pathology

ENTO 3501 Entomology for Educators
Description: Hands-on laboratory course designed to provide high school science teachers, FFA or 4H leaders with all of the resources and background information needed to use insects as a model to teach scientific concepts. Curriculum and resources are provided at the level of 7-12th grade and may be adapted to other levels as needed.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Entomology & Plant Pathology

ENTO 3533 Arachnid Biology
Description: The biology of arachnids with an emphasis on evolutionary relationships and comparative morphology, physiology, ecology, and natural history; laboratory emphasis on ecological role in biodiversity and impact to public / veterinary health including the role mites, spiders, and ticks have in complex food webs.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENTO 4044 Insect Morphology and Physiology
Prerequisites: ENTO 2993 Introduction to Entomology.
Description: Function of insects and their organ systems and use of selected techniques for the study of insect physiology. May not be used for degree credit with ENTO 5044. Previously offered as ENTO 3043 and ENTO 3044.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENTO 4213 Invertebrate Conservation
Description: Fundamentals of conservation with emphasis on rare and endangered invertebrates including insects. Topics include the importance of enhancing services provided by insects, including pollination, decomposition, pest suppression, and contributions to food webs and how to manage threats from pesticides and habitat losses. May not be used for degree credit with ENTO 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 4223 Ecological Methodology
Prerequisites: One course in either ecology or general biology.
Description: Use of insects and other invertebrates for describing and evaluating interactions of individuals and populations with their environments. Coverage of behavioral and physiological ecology on consequences to individuals; population and community ecology considered in dynamics of groups of organisms in ecosystems. May not be used for Degree Credit with ENTO 5223.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENTO 4400 Special Topics
Prerequisites: Consent of instructor.
Description: Special topics in plant pathology, entomology or related fields. Same course as PLP 4400. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Entomology & Plant Pathology

ENTO 4464 Insect Biology and Classification
Prerequisites: ENTO 2993 or equivalent or consent of instructor.
Description: Insect phylogeny, taxonomy, behavior, morphology and physiology in the context of ecosystem function. Major roles of insects in shaping ecosystem diversity, as indicators of environmental integrity, and as vectors of plant and animal pathogens and parasites.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENTO 4484 Aquatic Entomology
Prerequisites: ENTO 2993 or instructor permission.
Description: Biology, taxonomy and ecology of insects and other invertebrates, inhabiting freshwater environments. Identification and biology of individual taxa. Roles of insects in aquatic ecology, as a forage base. May not be used for degree credit with ENTO 5484 or ZOOL 5484. Same course as ZOOL 4484. Previously offered as ENTO 4483.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENTO 4513 Biological Control
Prerequisites: ENTO 2993 or equivalent or consent of instructor.
Description: The ecological principles and applied practices of biological control of insects and weeds. Principles include the scientific basis of biological control; natural enemies and their biology; biological control methods; and biological control in invasive species and pest management programs. May not be used for degree credit with ENTO 5513.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENTO 4573 Introduction to Forensic Entomology
Description: The role of arthropods in decomposition, the use of forensic entomology in criminal and civil investigations and the increasing importance of forensic science on society; material includes content that some students may find disturbing. May not be used for degree credit with ENTO 5573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 4733 Insect Behavior and Chemical Ecology
Prerequisites: ENTO 2993 and CHEM 3015 or equivalent.
Description: Behavioral biology of insects. Ecological interactions among organisms mediated by naturally produced chemicals. An interface of ecology, behavior, physiology and chemistry with examples from animals, plants and microorganisms. Origin, function, significance and utilization of semiochemicals such as pheromones and allelochemicals. No credit for students with credit in ENTO 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 4800 Entomology Practicum
Prerequisites: Consent of instructor.
Description: Supervised research or extension experience with faculty in the Entomology/Plant Pathology Dept. or with approved governmental agencies or private employers. Written report required at close of practicum. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Entomology & Plant Pathology

ENTO 4854 Medical and Veterinary Entomology
Prerequisites: ENTO 2993 or consent of instructor.
Description: Biology and control of arthropod vectors of disease and the diseases carried by arthropods. Course includes emphasis on scientific writing skills. No credit for students with credit in ENTO 5854.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 4 Contact: 7
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENTO 5003 Insect Biochemistry
Prerequisites: BIOC 3653 or equivalent or consent of instructor.
Description: Biochemical processes in insects and closely related arthropods with emphasis on pathways unique to this group. Biochemical aspects of arthropod-microbe and arthropod-host interactions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 5213 Invertebrate Conservation
Description: Fundamentals of conservation with emphasis on rare and endangered invertebrates including insects. Topics covered include the importance of enhancing ecological services provided by insects, including pollination, decomposition, pest suppression, and contributions to food webs. May not be used for degree credit with ENTO 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 5523 Integrated Management of Insect Pests and Pathogens
Prerequisites: ENTO 2993 and PLP 3344.
Description: Modern theory and practices for management of insect pests and pathogens in plant production systems, emphasizing an ecologically-based, integrated approach. Basic concepts of pest management, decision-making, cost/benefit analysis and risk/benefit analytics. Previously offered as ENTO 5524.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomol & Plant Path

ENTO 5573 Introduction to Forensic Entomology
Description: The role of arthropods in decomposition, the use of forensic entomology in criminal and civil investigations and the increasing importance of forensic science on society; material includes content that some students may find disturbing. May not be used for degree credit with ENTO 4573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

ENTO 5613 Host Plant Resistance
Prerequisites: ENTO 2993 and PLP 3343 or equivalent and a general genetics course; or consent of instructor.
Description: Interactions of plants and the herbivorous insects and pathogenic micro-organisms that attack them. Development and deployment of multiple-pest resistant cultivars in crop management systems. Same course as PLP 5613. Previously offered as ENTO 5612.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

ENTO 5733 Insect Behavior and Chemical Ecology
Prerequisites: ENTO 2993 and CHEM 3015 or equivalent.
Description: Behavioral biology of insects. Ecological interactions among organisms mediated by naturally produced chemicals. An interface of ecology, behavior, physiology and chemistry with examples from animals, plants and microorganisms. Origin, function, significance and utilization of semiochemicals such as pheromones and allelochemicals. No credit for students with credit in ENTO 4733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

Entrepreneurship & Emerging Enterprises (EEE)

EEE 1010 Creativity, Innovation and Entrepreneurship
Description: Examination of the creative process. Exploration of underlying premises of creativity, exposure to basic frameworks and concepts, and examination of obstacles to creativity. Emphasis on practical applications. Intended for students in Creativity, Innovation and Entrepreneurship Learning Community. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 1020 Creativity, Innovation and Entrepreneurship II
Description: Examination of the underpinnings of entrepreneurship and innovation as each relates to the creative process. An applied perspective is adopted in exploring the interfaces between creativity, innovation and entrepreneurship. Intended for students in Creativity, Innovation and Entrepreneurship Learning Community. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 1661 Free Enterprise Essentials
Description: An exploration of the free enterprise system on the basis of both wealth creation and societal justice.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 2003 Imagination In Entrepreneurship
Description: Students will learn creative theory, creativity tools and design thinking tools in order to develop and strengthen their creative thinking skills. Students will apply their learning to discover, define, analyze, and present creative solutions to important current interdisciplinary issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 2023 Introduction to Entrepreneurship
Description: Focuses on both the entrepreneurial mindset and the process of launching and growing a new business. Reviews opportunities, innovation, new value creation, business context, existing firms and any area of business or life that pertains to entrepreneurship.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 2083 Entrepreneurship & Society
Description: In this unique course we study the relationship between entrepreneurship and society. Core questions are: How does society, politics, culture, etc. affect entrepreneurship? And how does entrepreneurship affect society, politics, and the economy? Students gain a uniquely broad understanding of entrepreneurship and political economy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 2890 Introductory Honors Add-On for Entrepreneurship
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental introductory honors experience to partner concurrently with designated entrepreneurship course(s). This course adds a different intellectual dimension to the designated course(s). Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship
General Education and other Course Attributes: Honors Credit

EEE 3020 Business Plan Laboratory
Description: Provides any student regardless of background with a fundamental understanding of the logic and structure of a business plan and a knowledge of basic tools and concepts for putting together a great business plan for an original idea or concept. Applies to for-profit and non-profit ventures. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 3023 Introduction to Entrepreneurial Thinking and Behavior
Prerequisites: EEE 2023.
Description: Overview of entrepreneurial thinking and behavior and its role in our lives. Examination of what it takes to start and sustain new concepts and ventures. Central focus is on the issues surrounding effective implementation of the entrepreneurial process across a variety of contexts. May not be used for degree credit with EEE 3673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 3031 Entrepreneurial Value Creation in Society
Description: This 1-hour seminar presents an intellectual framework for understanding the economic and ethical implications of the forces that promote or hinder the creation of value in society. In particular, students will engage in readings, discussions, and interactions with guest lecturers, related to topics such as: individual liberty and responsibility, economic freedom, fairness and equality, scarcity and property rights, intellectual property, competition and anti-competition, cronyism, authoritarianism, and globalization and free trade. The aforementioned topics will be examined and discussed within the context of governments, institutions, business entities, and consumers, and their collective impact on innovation, entrepreneurship, and advances in social well-being. This seminar should be of interest to students from diverse majors and backgrounds.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 3033 Women and Minority Entrepreneurship
Description: The course covers race, gender, and ethnicity as factors that impact entrepreneurship. Students look at the theoretical underpinnings of minority and women's entrepreneurship and their opportunities, challenges, and strategies when creating ventures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 3673 Business Model Discovery
Description: Course teaches the fundamentals of testing the feasibility of a business idea and building an effective business model around a business concept. May not be used for degree credit with EEE 3023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 3890 Advanced Honors Add-On for Entrepreneurship
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental advanced honors experience to partner concurrently with designated entrepreneurship course(s). This course adds a different intellectual dimension to the designated course(s). Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship
General Education and other Course Attributes: Honors Credit

EEE 4010 Special Topics in Entrepreneurship
Description: Examination of entrepreneurship issues. Specific topics vary from semester to semester. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4080 Riata Internship Program
Prerequisites: Consent of the Director of the Riata Center for Entrepreneurship.
Description: Professionally supervised experience building career-related skills, interests and personal development while making valuable contacts and references. Allows testing skills in real life projects with host companies. Periodic reports, both oral and written, required as specified by the instructor. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Entrepreneurship

EEE 4090 Study Abroad in Entrepreneurship
Prerequisites: Consent of the School of Entrepreneurship Department Head.
Description: Participation in a School of Entrepreneurship Study Abroad program. May not be used for degree credit with EEE 5090. Previously offered as EEE 3090. Offered for variable credit, 1-6 credit hours, maximum of 18 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4103 Entrepreneurship & the Economy
Description: Explore the role of entrepreneurship in the economy. Learn why the market economy is best understood not as a system or equilibrium but as an unfolding process with entrepreneurship as its driver. The course introduces the teachings of the Austrian school of economics, which focuses on economic understanding through reasoning and logic, not statistical analysis and mathematical modeling. Austrian economics recognizes entrepreneurial value creation as the core of the market process, that value lies in the eyes of the beholder, and that productive capital exists in complex structures intended to produce specific goods and services. Same course as ECON 4353. May not be used for degree credit with EEE 5103 or ECON 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4113 Dilemmas and Debates in Entrepreneurship
Description: Designed around a series of critical dilemmas confronted by entrepreneurs when creating and growing a venture. Entrepreneurs explore with students the issues surrounding these dilemmas in a structured format.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4123 Entrepreneurship and The Arts
Description: Introduces entrepreneurship as a way of thinking and acting within the arts, including fine art, theatre, music and design. Key entrepreneurial competencies are explored, including opportunity recognition, risk management, resource leveraging, and innovation. May not be used for degree credit with EEE 5123. Previously offered as EEE 3123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4223 Entrepreneurial Marketing
Prerequisites: MKTG 3213.
Description: Examination of the roles of marketing in entrepreneurial ventures and entrepreneurship in the marketing efforts of any organization. Emphasis on marketing as it relates to risk management, resource leveraging and guerrilla approaches. Same course as MKTG 4263. May not be used for degree credit with EEE 5223 or MKTG 5223. Previously offered as EEE 3263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4253 International Entrepreneurship
Description: The course provides a survey of entrepreneurship under different global settings and the social, economic, cultural, and political challenges found in these settings. May not be used for degree credit with EEE 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4263 Corporate Entrepreneurship
Prerequisites: EEE 3023 or instructor permission.
Description: Examination of the application of entrepreneurship concepts and behaviors within established organizations, assessment of factors contributing to a company's entrepreneurial orientation, and identification of ways to foster high levels of entrepreneurship within firms. No credit for students with credit in EEE 5263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4313 Emerging Enterprise Consulting
Description: Students nearing the end of their studies work in teams in addressing problems and opportunities within existing entrepreneurial ventures. Using an established methodology, teams work with local entrepreneurs in establishing priorities and producing tangible deliverables that solve business needs. No credit for students with credit in EEE 5313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4333 Launching a Business: The First 100 Days
Description: Addresses operational challenges in launching a new venture in its very formative stage. Attention is devoted to business formation, risk management, recordkeeping, go-to-market strategy, contracts, facilities, dealing with suppliers, and intellectual property, among other issues. May not be used for degree credit with EEE 5333. Previously offered as EEE 3333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4403 Social Entrepreneurship
Description: An examination of the application of entrepreneurship concepts and principles in addressing vexing social needs such as hunger, homelessness, environmental degradation, disease, domestic violence and inadequate access to education. Exploration of unique challenges in and approaches for developing and implementing viable business models for social ventures. May not be used for degree credit with EEE 5403. Previously offered as EEE 3403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4503 Designing, Prototyping, Testing
Description: This course provides students' a hands-on experience in making things. Students conceptualize, design, prototype, manufacture and sell a new product. The class exposes students to using 3D printers along with other makerspace tools. May not be used for degree credit with EEE 5503. Previously offered as EEE 3503.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entrepreneurship

EEE 4533 Growing Small and Family Ventures
Prerequisites: EEE 3023 or Instructor permission.
Description: Exploration of unique challenges involved when growing small and family-owned ventures. The life stages of emerging enterprises are examined. Issues addressed include resource needs, skill requirements, functional area development, and work-life balance. May not be used for degree credit with EEE 5513. Previously offered as EEE 3513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4603 Entrepreneurship Empowerment in South Africa
Prerequisites: Instructor permission required.
Description: Introduction to the supporting emerging enterprises assessment model. Includes focused attention on consulting within all the functional areas of an emerging enterprise operating under conditions of adversity. Periodic guest lectures by subject matter experts. Exposure to the local customs, business environment, and culture of entrepreneurs in a South African context. No credit for students with credit in EEE 5603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4610 Entrepreneurship Practicum
Prerequisites: EEE 3023 and instructor permission.
Description: Transfer of knowledge from entrepreneurship course work into practice through hands-on experiences, such as business development consulting projects, management of a venture capital fund and creation of a student-owned business. Course previously offered as MGMT 4610. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4653 Venture Capital
Description: Approaches to raising and managing working capital in emerging enterprises. Examination of the many sources of financing for start-up and early stage ventures. Attention devoted to determining financial needs of new ventures and formulating, determining valuations and formulating deal structures. Course previously offered as MGMT 4653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4663 Applied Creativity & Design Thinking
Description: Exploration of creativity and ideation as they relate to entrepreneurship. Perspectives on opportunity discovery and assessment are examined. Theoretical and conceptual foundations for the application of creativity to business problem solving are investigated. May not be used for degree credit with EEE 5663. Previously offered as EEE 3663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4703 Project Management for Entrepreneurship
Description: Understanding invaluable basic project management skills for startup entrepreneurs and innovators within existing organizations (intrapreneurs) and to successfully manage projects in general. No credit for students with credit in EEE 5703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 4813 The Entrepreneur: Hero or Villain (H)
Description: An exploration of the entrepreneur in both historic and contemporary settings through the lens of ideas, events, and fine arts. May not be used for degree credit with EEE 5813. Previously offered as EEE 3813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship
General Education and other Course Attributes: Human Heritage & Cultures

EEE 4863 Developing Innovative Ideas
Prerequisites: Permission of instructor.
Description: Course teaches the fundamentals of testing the feasibility of a business idea and building an effective business model around a business concept.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5080 Riata Internship Program
Prerequisites: Consent of the Director of the Riata Center for Entrepreneurship.
Description: Professionally supervised experience building career-related skills, interests and personal development while making valuable contacts and references. Allows testing skills in real life projects with host companies. Periodic reports, both oral and written, required as specified by the instructor. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Entrepreneurship

EEE 5090 Study Abroad In Entrepreneurship
Prerequisites: Consent of the School of Entrepreneurship Department Head.
Description: Participation in a School of Entrepreneurship sanctioned Study Abroad program. May not be used for degree credit with EEE 4090. Offered for variable credit, 1-6 credit hours, maximum of 18 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5103 Entrepreneurship & the Economy
Description: Explore the role of entrepreneurship in the economy. Learn why the market economy is best understood not as a system or equilibrium but as an unfolding process with entrepreneurship as its driver. The course introduces the teachings of the Austrian school of economics, which focuses on economic understanding through reasoning and logic, not statistical analysis and mathematical modeling. Austrian economics recognizes entrepreneurial value creation as the core of the market process, that value lies in the eyes of the beholder, and that productive capital exists in complex structures intended to produce specific goods and services. Same course as ECON 5353. May not be used for degree credit with EEE 4103 or ECON 4353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

EEE 5113 Entrepreneurship and Venture Management
Prerequisites: Admission to MBA program or instructor permission.
Description: Enterprise creation and problems faced by entrepreneurs in early growth stages of business ventures. An interdisciplinary problem-solving approach with emphasis on case studies and plans for new business ventures. Course previously offered as BADM 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5123 Entrepreneurship and The Arts
Description: Explores entrepreneurship as a way of thinking and acting within the arts, including fine art, theatre, music and design. The application of entrepreneurial framework competencies within the arts is examined. Attention is devoted to opportunity recognition, innovation, creative problem-solving, risk assessment and management, resource leveraging and related entrepreneurial capabilities. May not be used for degree credit with EEE 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5133 Dilemmas and Debates in Entrepreneurship
Prerequisites: Graduate standing.
Description: Designed around a series of critical dilemmas confronted by entrepreneurs when creating and growing a venture. Entrepreneurs explore with students the issues surrounding these dilemmas in a structured format.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

EEE 5200 Special Topics in Entrepreneurship
Prerequisites: Graduate standing.
Description: Examination of entrepreneurship issues. Specific topics vary from semester to semester. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Same course as ARCH 5093 and MSE 5200.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Entrepreneurship

EEE 5223 Entrepreneurial Marketing
Prerequisites: Admission to MBA program or instructor permission.
Description: Interplay of entrepreneurship concepts and marketing concepts, including the role of marketing in entrepreneurial ventures, and the role of entrepreneurship in a firm's marketing efforts. Emphasis is placed on how to address the significant changes taking place in markets and the modern marketing function. Same course as MKTG 5223. May not be used for degree credit with EEE 4223 or MKTG 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

EEE 5233 Ideation, Creativity & Innovation
Description: Where do great business ideas come from? How do ideas become profitable products? This highly interactive course focuses on (1) How to use observational tools and other techniques to generate ideas, (2) how to test and vet the ideas, to separate the good from the bad, and (3) how to utilize ideas or innovations to launch a business or improve the prospects of an existing firm. Course introduces students to design thinking, which is a dynamic process for creative problem solving.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

EEE 5253 International Entrepreneurship
Description: The course provides a survey of entrepreneurship under different global settings and the social, economic, cultural, and political challenges found in these settings. May not be used for degree credit with EEE 4253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5263 Corporate Entrepreneurship
Prerequisites: Admission to MBA program or instructor permission.
Description: Examination of the application of entrepreneurship concepts and behaviors within established organizations, assessment of factors contributing to a company's entrepreneurial orientation, and identification of ways to foster higher levels of entrepreneurship within firms. May not be used for degree credit with EEE 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5313 Emerging Enterprise Consulting
Prerequisites: Admission to the MBA program or instructor permission.
Description: Using an established methodology, student teams work with local entrepreneurs in establishing consulting priorities within their ventures and producing tangible deliverables that solve business challenges. All facets of business are addressed. May not be used for degree credit with EEE 4313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5333 Launching a Business: The First 100 Days
Description: Addresses operational challenges in launching a new venture in its very formative stage. Attention is devoted to business formation, risk management, record keeping, go-to-market strategy, contracts, facilities, dealing with suppliers, and intellectual property, among other issues. May not be used for credit with EEE 4333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

EEE 5403 Social Entrepreneurship
Description: Advanced level examination of entrepreneurship in the social or non-profit sector. Investigation of issues surrounding creation and operation of new ventures that address vexing social needs and opportunities. Explores the application of entrepreneurship concepts and principles in a social context. May not be used for degree credit with EEE 4403 or EEE 5403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

EEE 5493 Entrepreneurship and Architecture
Prerequisites: Admission to a graduate program.
Description: Introduction to entrepreneurship within the context of architecture, with direct application to architectural services, activities and products. Emphasis on implementing the entrepreneurial process in starting and sustaining new ventures that significantly shape the building environment. Same course as ARCH 5493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5503 Designing, Prototyping, and Testing Creative Products
Description: This course provides students' a hands-on experience in making things. Students conceptualize, design, prototype, manufacture and sell a new product. The class exposes students to using 3D printers along with other makerspace tools. May not be used for degree credit with EEE 4503 or EEE 5503.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entrepreneurship

EEE 5513 Growing Small and Family Ventures
Prerequisites: EEE 3023 or instructor permission.
Description: Exploration of unique challenges involved when growing small and family-owned ventures. The life stages of emerging enterprises are examined. Issues addressed include resource needs, skill requirements, functional area development, and work-life balance. May not be used for degree credit with EEE 4533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5603 Entrepreneurship Empowerment in South Africa
Prerequisites: Instructor permission required.
Description: Introduction to the supporting emerging enterprises assessment model. Includes focused attention on consulting within all the functional areas of an emerging enterprise operating under conditions of adversity. Periodic guest lectures by subject matter experts. Exposure to the local customs, business environment, and culture of entrepreneurs in a South African context. No credit for students with credit in EEE 4603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5610 Advanced Entrepreneurship Practicum
Prerequisites: EEE 5113.
Description: Transfer of knowledge from entrepreneurship course work into practice through hands-on experiences, such as business development consulting projects, management of a venture capital fund, and creation of student-owned business. Course previously offered as MGMT 5610. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

EEE 5653 Venture Capital
Prerequisites: EEE 5113, admission to MBA program or instructor permission.
Description: Venture capital investing and the business development process. Exploration of how startups and early stage firms determine money needs, obtain financing and structure deals. No credit for students with credit in EEE 4653. Course previously offered as MGMT 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

EEE 5703 Project Management for Entrepreneurship
Description: Understanding invaluable basic project management skills for startup entrepreneurs and innovators within existing organizations (intrapreneurs) and to successfully manage projects in general. No credit for students with credit in EEE 4703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5713 Native American Entrepreneurship
Description: Understanding the impact entrepreneurship thinking and behavior can have for Native Americans. Strategies and tactics to increase the number of new business ventures launched by Native Americans. No credit for students with degree credit in EEE 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5813 The Entrepreneur: Hero or Villain
Description: An exploration of the entrepreneur in both historic and contemporary settings through the lens of ideas, events, and fine arts. May not be used for degree credit with EEE 4813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 5863 CIE Scholar Practicum
Description: Course teaches the fundamentals of testing the feasibility of a business idea and building an effective business model around a business concept.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

EEE 5903 Applied Innovation I
Description: Addresses business startup fundamentals, decision-making tools and theory of innovative problem solving. Students will have the opportunity to interact with South African and Central American students participating in summer programs allowing best practices and experiences with students from other cultures and countries.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entrepreneurship

EEE 5993 Preparing Effective Business Plans
Prerequisites: ACCT 5183, ACCT 5283, FIN 5013, MGMT 5113, EEE 5113, EEE 5663 and EEE 5333.
Description: The critical issues involved with developing a business venture, through the process of developing a comprehensive business plan including feasibility analysis, actual development of the plan, and preparing to present the plan to investors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 6200 Entrepreneurship Research Project
Prerequisites: Admission to doctoral program and instructor permission.
Description: Directed research projects for doctoral students. Students conduct publishable research on leading issues in entrepreneurship. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 6213 Entrepreneurship: Theory and History
Prerequisites: Doctoral student standing and consent of instructor.
Description: Survey of the existing conceptual, theoretical, and practical links between entrepreneurship and other disciplines. Exploration of opportunities for cutting edge research on the boundaries of entrepreneurship and other disciplines.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 6263 Theoretical Foundations in Entrepreneurship
Prerequisites: Doctoral student standing and consent of instructor.
Description: Broad survey of major topics in the field of entrepreneurship. The primary theoretical underpinnings of the field are covered as well as some of the common and/or promising methodological approaches to the study of entrepreneurial phenomena.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 6343 Entrepreneurship Processes
Prerequisites: Doctoral student standing and consent of instructor.
Description: Current research that addresses important entrepreneurial questions and assesses "gaps" in those literatures. Strategies will be proposed to address these gaps. Focuses on refining students' skills in "mapping out" and writing research papers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 6353 Advanced Research Methods in Entrepreneurship
Description: PhD-level seminar designed to promote high-quality social science research by providing relevant information, exercises, and practical advice related to conducting empirical research. This course complements the student’s doctoral education by focusing on both the conducting and writing of quantitative research. Ultimately, this course is an effort to help students to further develop skills related to data collection, statistical analysis, and writing of empirical research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

EEE 6363 Individual Theories in Entrepreneurship Research
Prerequisites: Admission to doctoral program.
Description: Analysis of research and theories related to the individual entrepreneur.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Entrepreneurship

Environmental Science (ENVR)

ENVR 1011 Environmental Science Undergraduate Seminar
Description: Introduction to environmental science as a discipline. Develop personal and professional connections between coursework and career goals through networking and mentorship with students, graduates, faculty, and environmental professionals.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 1113 Elements of Environmental Science (N)
Description: Application of biology, chemistry, ecology, economics, geology, hydrology, mathematics, physics, and other agricultural sciences to environmental issues. Addressing environmental problems from the standpoint of ethics, risk, and scientific and social feasibility. Emphasis on agricultural systems and natural resources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture
General Education and other Course Attributes: Natural Science Reasoning

ENVR 3101 Career Development in Environmental Sciences
Description: Develop career readiness skills in the environmental science field through resume building. Identify necessary skills to meet job requirements. Learn about career development resources and networking with environmental professionals. Understand the steps of the job/graduate school search, application and interview process.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 3113 Environmental Sampling and Analysis
Prerequisites: ENVR 1113 and CHEM 1215 or CHEM 1314 and BIOL 1114 or (BIOL 1111 and BIOL 1113) and STAT 2013; SOIL 2124 (or concurrently)
Description: Sampling and analysis for environmental characterization. Introduction of methods to analyze air, soil, water, vegetation, and biological samples. Applying state and federal criteria to evaluate environment.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Agriculture

ENVR 4010 Internships in Environmental Science
Description: Supervised internships with business, industry, or governmental agencies in environmental policy, natural resources, and water resources. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 4033 Ecology of Invasive Species
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111); and PBIO 1404 and BIOL 1604 recommended.
Description: Ecological principles and their application to invasive species. Population level characteristics, community and ecosystem level effects of a wide variety of taxa including microbial, fungal, plant invertebrate and vertebrate examples. Global consequences and governmental policies/programs designed to limit the spread of invasives. Same course as NREM 4033. May not be used for degree credit with NREM 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 4112 Land Measurement and Site Analysis
Prerequisites: MATH 1513 or equivalent.
Description: Methods and techniques used to locate sites and evaluate physical conditions. Includes map interpretation and land description, use of Global Positioning Systems, Rectangular System of Land Description and determination of land elevations, areas and slopes. Same course as AST 4112. Previously offered as MCAG 3311 and MCAG 4112.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Agriculture

ENVR 4113 Advanced Environmental Sampling and Analysis
Prerequisites: ENVR 3113.
Description: Advanced sampling and analysis methods for environmental assessment. Development of Sampling and Analysis Plan and Quality Assurance Project Plan. Emphasis on data synthesis and understanding relationships between environmental media.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Agriculture

ENVR 4363 Environmental Soil Science
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and SOIL 2124.
Description: Re-emphasis of soil science concepts vital in the understanding of processes that are within the realms of the ecological regulator function of the soil; discussions on the role of soil as the foundation of forest, rangeland/pastureland, agricultural, urban and suburban, as well as wetland ecosystems; impact of soil processes on global environmental concerns; soil as the ultimate recipient of waste; impact of soil processes on groundwater and surface water quality Same course as SOIL 4363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 4500 Environmental Science Problems
Prerequisites: Upper-division standing, GPA of 2.50 or better, and consent of instructor.
Description: Individual or small group study of selected problems in environmental science. Course may be used twice for up to six credit hours to meet degree requirements. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 4512 Introduction to National Environmental Policy Act
Description: Outline of the National Environmental Policy Act (NEPA) documentation of potential environmental impacts for decision makers. Development of environmental assessment, environmental impact statements, and categorical exclusion documents that result from the NEPA processes.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 4513 Nature-based Solutions
Prerequisites: Senior Standing
Description: Explore the definition of nature-based solutions (NbS) within environmental science and examples of current practices around the world. Examine NbS as a way to confront global environmental challenges. Utilize available guidance to suggest nature-based solutions to specific problems on a local scale. May not be used for degree credit with SOIL 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 4573 Ethical Issues in Agriculture and the Environment
Description: Application of ethical concepts and economics theory to real-world agricultural and environmental issues. Recognition of the moral, ethical, and economic dimensions of value that aid in understanding and resolving the controversial aspects of these private and public issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 4811 Capstone Project Planning
Prerequisites: Senior standing. ENVR 1113 and ENVR 3113 (with a grade of "C" or better) or ENVR 3113 concurrent.
Description: Collaborate in a team setting to develop a comprehensive proposal and strategic timeline addressing a real-world environmental science problem. Apply essential teamwork skills, integrate knowledge from prior coursework, and engage with environmental stakeholders, advisors, and experts. Develop a written proposal aimed at resolving the issue or implementing an innovative solution.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 4813 Environmental Science Capstone
Prerequisites: ENVR 4811 with a grade of "C" or better. Must be taken the immediate semester after completion of ENVR 4811.
Description: Team-based project to develop and recommend solutions and communicate recommendations to stakeholders as part of a senior capstone project. Research results are presented by oral and written reports directly to stakeholders.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Agriculture

ENVR 4893 Environmental Soil Chemistry
Prerequisites: SOIL 2124 and (CHEM 1225 or CHEM 1515).
Description: Chemistry of soil systems with an emphasis on environmental health and quality. Topics include soil minerals, soil organic matter, soil solution, sorption phenomena, redox reactions, and soil acidity. Same course as SOIL 4893. Previously offered as SOIL 3893 and AGRN 3893.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 4913 Animal Waste Management
Prerequisites: SOIL 2124.
Description: Aspects of animal waste management related to animal nutrition, system design, land application, socioeconomic issues and environmental impacts. Same course as ANSI 4913 and SOIL 4913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5000 Master's Thesis
Prerequisites: Approval of advisory committee and departmental steering committee.
Description: Research leading to master's thesis or report. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 5033 GIS Applications for Water Resources
Prerequisites: Graduate standing.
Description: Application of theoretical and practical components of geographic information systems for engineers. Digital mapping of water resources information, spatial coordinate systems and digital terrain analysis using digital elevation models. Analysis of a variety of spatial data in efficient and effective manner. Introduction of geospatial analytical algorithms to solve civil and environmental problems. Same course as CIVE 5033. May not be used for degree credit with CIVE 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5050 Readings in Environmental Science
Prerequisites: Consent of the instructor.
Description: This course provides an avenue for masters students to extend their knowledge of Environmental Science topics not covered in other courses. This course is not available for doctoral students. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 5123 Environmental Problem Analysis
Description: This course reviews the process of environmental problem analysis using current practical examples. This course draws on theories from various disciplines and applies appropriate techniques of analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5200 Special Topics in Environmental Science
Prerequisites: Graduate standing.
Description: Topics and issues in the broad field of environmental science. Group discussions and projects not covered by existing courses such as ecological risk assessment, water chemistry and environmental law. Offered for variable credit, 1-4 credit hours, maximum of 10 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 5210 Seminar in Environmental Science
Prerequisites: Consent of the instructor.
Description: This seminar is offered as a special topics course for masters students. The theme of the seminar will vary in accordance with recent advances in environmental science and the interests of the faculty instructor. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 5303 Issues in Environmental Sustainability
Description: The course reviews human-nature relationships and how they affect the ability of future generations to sustainably improve their quality of life. The course also considers methods of environmental stewardship that can contribute to sustainability. In-class and/ or online discussions of issues, guest presentations by outside experts, and reports on selected topics are included.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5313 Clean Air Act: Regulation, Compliance and Reporting
Description: This course will present an overview of the Federal Clean Air Act including regulatory history and framework, key concepts such as technology forcing, enforceability and adequate margin of safety. This course addresses the preparation of emissions calculations for reporting and permitting, discussion of emissions monitoring and control technologies, and review of reporting requirements and legal standards for compliance. Course will focus on U.S. Federal and State application.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5353 Environmental Outreach and Education
Description: Techniques for environmental education and outreach programs for adults and children in the classroom and in the public arena.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5403 Water Resource Management, Law, and Policy
Description: This course explores ways to secure the right to obtain and use water, as well as the law relating to water pollution permitting. Surface and groundwater resources will be the focus. The course covers doctrines of water allocation, groundwater management regimes, the public rights to water, federal and tribal water management and regulation of water resources, and the permitting regime under the Clean Water Act.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5413 Legal Framework for Resource Decision - Making and Public Land Management
Description: This course focuses on the federal, state, and local agencies, policies, strategies, and public law that influence public lands management of the United States, and, to a lesser extent, other countries. Focus is on the historical and contemporary land management approaches used to protect, exploit, manage, and/or use public lands, with specific emphasis on the application of the National Environmental Policy Act (NEPA), jurisdiction, and contemporary issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5433 Environmental Law for Management Professionals
Description: This course blends fundamental environmental policy with legal and practical information for the management professional with emphasis on case and statutory histories. The course will explore why environmental laws and policies developed, how they are implemented, and how compliance is achieved. Students will gain the ability to evaluate the need for permits and know how to work practically and cooperatively with relevant state and federal agencies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5443 Hazardous Waste Regulations for Environmental Managers
Description: Covers air, water and waste permitting and plans as well as DOT transportation of hazardous materials and several OSHA standards.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5453 Bioremediation for Environmental Managers
Description: Teaches the fundamental biological mechanisms that allow microorganisms and plants to degrade and/or remove contaminants from the environment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5503 Environmental Management Practicum
Prerequisites: 18 graduate credit hours.
Description: This course explores methods of analyzing sustainable solutions to complex environmental, safety and health problems using an integrated team approach. This approach combines technical, legal, economic, and sociopolitical information into a coherent analytical framework.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5510 Environmental Management Internship
Prerequisites: ENVR 5503 and consent of program director.
Description: The student must identify and solve an environmental problem under the supervision of a competent professional environmental manager, and submit and defend a formal report presenting the problem, solution analysis methodologies, and recommended solution. The internship must involve at least 240 contact hours with the manager. The course is required of all masters students pursuing a plan of study in environmental management. Course previously offered as ENVR 5600. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 5513 Advanced Environmental Impact Analysis
Description: National Environmental Policy Act (NEPA) outlines documentation of potential environmental impacts for decision makers. Development of environmental assessment, environmental impact statements, and categorical exclusion documents that result from the NEPA processes. Development of environmental assessment projects graded on a pass/fail basis.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Agriculture

ENVR 5523 Industrial Ecology
Prerequisites: General biology.
Description: Provides students with an overview and broad understanding of ecology principles as applied to an industrial setting. The course begins with an overview of general ecological principles such as ecosystem components and structures, biogeochemical cycles, energy flows, and properties of populations. The course concludes with a consideration of industrial ecology principles such as sustainability, pollution prevention, life cycle assessment and waste minimization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5533 Genres of Environmental Writing
Description: This course focuses on three written genres: proposals, reports and academic articles. Students will learn the basic Introduction, Methods, Results, and Discussion (IMRD) structure. This structure is the basis of workplace reports and research articles in a wide variety of academic disciplines. Students will examine how the language features and organizational structure of these documents are influenced by their audience and context.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5543 Environmental Management Systems
Description: This course introduces strategies for the design and operation of environmental management systems that reduce environmental impacts in conformance with ISO 14000 standards. Topics include aspect identification, impact assessment, impact reduction strategies, and management oversight. Other topics such as training, internal and external auditing, and integration with other management programs will also be addressed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5563 Transportation of Hazardous Materials
Description: This course will fulfill the Federal Department of Transportation (DOT) training requirements for General Awareness and Security Awareness in accordance with 49 CFR, Part 172, Subpart H. The course covers shippers' responsibilities associated with the many hazardous materials regulated by the DOT. Students will learn how to use the hazmat table and complete shipping papers; when to use specific hazard placards, markings and labels; and how to appropriately package specific hazardous materials.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5573 Applied Standards for Environmental Managers
Description: Foundational understanding of the complex regulatory framework related to waste management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5583 Safety Aspects for Environmental Managers
Description: This course fulfills OSHA's 30-hour General Industry training requirements as per 29 CFR 1910. The course provides environmental managers with specialized training to recognize, avoid, and prevent potential jobsite hazards. Students will gain a practical understanding of hazard analysis calculations and their application within the rules and regulations of OSHA.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5593 Hazardous Waste Operations and Emergency Response: HAZWOPER
Description: This course fulfills the off-site requirements of OSHA 40-hour Hazardous Waste Operations and Emergency Responses Standard (HAZWOPER) requirements for General Site Workers as per 29 CFR 1910.120. The course uses discussion, demonstration, simulations, and hands-on experiences to address personal protective equipment use, decontamination procedures, and tactics for establishing safe work areas at hazardous waste sites or in emergency response work.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5613 Introduction to Environmental Toxicology & Industrial Hygiene
Description: An introduction to the basic principles, concepts, and issues associated with environmental toxicology and industrial hygiene. Environmental toxicology addresses biological, chemical and physical contaminants in the environment, their fate and transport, and their potential adverse effects. Also covers environmental factors that contribute to worker illness and injury resulting from exposure to chemical, physical and biological contaminants.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5633 Physical Geology for Environmental Managers
Description: Overview of the physical and chemical nature of the solid and fluid earth. Focuses on how these physical attributes and processes influence interactions between humans and the earth's environment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5673 Applied Hydrology & Hydrogeology for Environmental Managers
Description: Aspects of surface and groundwater of direct interest to environmental managers. Hydrology is considered from the perspective of irrigation and stormwater management. Hydrogeology is addressed as it applies to industrial and commercial sites. Emphasis on use of monitoring equipment and preparation of stormwater manager plans, groundwater investigation reports, and groundwater management plans.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5703 Chemical Aspects of Environmental Science I
Prerequisites: CHEM 1225, MATH 2155.
Description: For non-chemists with a basic understanding of industrial environmental chemistry. For the environmental professional student in the calculations required for permitting, such as the Clean Air Act, the Clean Water Act, release reporting (CERCLA), RCRA and Industrial Hygiene. The chemical interpretation of MSDS sheets and review of basic chemistry for individuals sitting for professional examinations. Fundamental scientific basis required for dealing with any environmental area.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5713 Chemical Aspects of Environmental Science II
Prerequisites: ENVR 5703.
Description: A continuation of 5703. Applications of statistical methods for environmental monitoring, environmental sampling, chemical wastewater treatment, fugacity (air emission calculations) and environmental chemical analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5723 Field Investigation for Environmental Managers
Description: This course focuses on practical environmental investigations of soil, surface water, and groundwater contamination within an industrial setting. Students will research study sites to design, estimate cost, and implement actual field investigations. Samples will be analyzed and results used to make recommendations for operational improvement and/or remediation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5733 Environmental Site Assessment
Description: This course introduces concepts associated with conducting environmental site assessments (ESAs) and contaminant remediation. Topics include review of federal regulations regarding site assessments, an overview of Phase I and Phase II ESA methodologies, proper soil/water sampling techniques, soil/geology/hydrogeology principles relating to environmental assessments, and various remediation strategies. The course includes field exercises simulating Phase I and Phase II ESA investigations, interpretation of historical aerial photos, and wetland identification.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5743 Environmental Impact Assessment
Description: The course teaches students how to understand and apply the National Environmental Policy Act to evaluate and document potential environmental impacts for decision makers. The course reviews the development of environmental assessment, environmental impact statement and categorical exclusion documents that result from the NEPA process. Emphasis is placed on the development of an environmental assessment program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5753 Environmental Site Remediation
Description: Introduction to concepts associated with environmental site remediation. Emphasis will be placed on the application and assessment of site clean-up.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5823 Watershed Management
Description: This course provides an overview of watershed management that integrates law, politics, economics, watershed science, engineering, education, social marketing, and conflict resolution. Students will also learn how to critically evaluate watershed management programs. Field trips to watersheds are included.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 5853 Field Stream Assessment
Description: Techniques for evaluating the health of streams. Laboratory techniques for fish and aquatic insect collection, habitat assessments, chemical water quality analysis, and stream discharge measurement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 6000 Doctoral Research for Dissertation
Prerequisites: Approval of advisory committee.
Description: Research leading to the PhD dissertation. Offered for variable credit, 1-12 credit hours, maximum of 24 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 6011 Survey of Environmental Science
Description: This course introduces newly admitted environmental science students to environmental research conducted by faculty at OSU. The course also helps students prepare interdisciplinary plans of study that support their professional and research goals. It is required of all ES doctoral students during their first year of enrollment. The course may also be taken by ES masters students, but is not required.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 6023 Research Methodologies in Environmental Science
Prerequisites: Permission of student's research adviser.
Description: Introduction to research techniques and literature in environmental science for doctoral students.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 6031 Interdisciplinary Research Report Preparation
Prerequisites: ENVR 6023 or AGED 5983 and permission of the student's research adviser.
Description: This course teaches students how to prepare and defend interdisciplinary dissertations. Students will learn how to interpret results, articulate findings, justify conclusions, and identify implications. They will also learn how to deliver professional conference presentations and write professional papers. The course requires permission of the student's research adviser. The course is required of all ES doctoral students just before they intend to prepare and defend their dissertations. ES master's students who want to learn more about preparing and defending a thesis may also enroll.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 6050 Advanced Readings in Environmental Science
Prerequisites: Consent of the instructor.
Description: This course provides an avenue for doctoral students to extend their knowledge of environmental science topics not covered in other courses. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 6210 Advanced Seminar in Environmental Science
Prerequisites: Consent of the instructor.
Description: This course is offered as a special topics course for doctoral students. The theme of the course will vary in accordance with recent advances in environmental science and the interests of the faculty instructor. No masters student may enroll in this course. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 6310 Advanced Topics in Environmental Science
Prerequisites: 24 credit hours of graduate credit and permission of instructor.
Description: This course covers current topics and issues in environmental science. Though the topics will vary, each course will typically include environmental assessment, environmental sustainability and environmental policy. Group discussions and team projects may be required. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Agriculture

ENVR 6503 Advanced Environmental Management Practicum
Prerequisites: 30 graduate credit hours.
Description: This course discusses and compares advanced methods of analyzing sustainable solutions to complex environmental, safety and health problems. A framework for integrating technical, legal, economic, and sociopolitical analysis into a risk-based model will be developed and applied to a real-world case study. Required for doctoral students pursuing a plan of study in environmental management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 6516 Advanced Environmental Management Internship
Prerequisites: ENVR 6503 and consent of program director.
Description: The student must identify and solve an environmental problem in collaboration with a competent professional environmental manager, and submit and defend a formal report presenting the problem, problem and solution analysis methodologies, and recommended solution. The internship must involve at least 480 contact hours with the manager. The course is an experience for all ES doctoral students pursuing a plan of study in environmental management.
Credit hours: 6
Contact hours: Lecture: 6 Contact: 6
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

ENVR 6623 Social Aspects of Environmental Planning
Description: This course develops students' theoretical and practical understanding of social aspects of environmental planning. The course addresses topics such as social impact assessment, the role of public involvement, environmental justice, and other social considerations in the implementation of environmental programs. It will also demonstrate the application of social science techniques in environmental planning and prepare students for the application of social perspectives in environmental decision-making - in both the public and private sectors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Agriculture

Family Financial Planning (FFP)

FFP 2003 Financial Health for Helping Professionals
Description: Develop and build healthy financial habits and maintain financial wellness through college and beyond.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 2613 Financial Perspectives throughout the United States (DS)
Prerequisites: Must have completed 20 credit hours.
Description: An introduction to the personal relationship with money focusing on similarities and differences between Race/Ethnicity, Sex/Gender, Aging, Religion, and Family Structure. This course provides an overview of history, present day application, seeks solutions, and encourages reflection on the personal and societal relationships with money.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Diversity, Society & Human Behavior

FFP 3803 Fundamentals of Family Financial Planning
Description: An introduction to issues and concepts related to the individual and family financial planning process and the client/planner relationship.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 3813 Insurance Planning for Families
Description: Aspects of risk to individuals and families and covers the tools and strategies that can be used to reduce and manage those risks.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 3823 Retirement Planning for Families
Description: Study of considerations in retirement planning for individuals and families.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 3833 Estate Planning for Families
Description: Aspects of the estate planning process and legislation applied to the needs of families.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 4303 Financial Counseling
Prerequisites: Must have completed 20 credit hours.
Description: This course emphasizes the development of professional skills for assisting individuals and families to become responsible financial managers through the financial counseling process. The course will focus on skills that need to be attained to become a helping professional with an expertise in financial planning including: relationship building, listening skills, practice standards, intake and record keeping, client action plans and agreements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 4813 Income Tax Planning for Families
Description: A review of tax laws and the tools that can be used for personal income tax planning to meet individual and family goals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 4823 Investment Planning for Families
Description: The essentials of how investment planning informs individual and family economic goals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 4933 Capstone: Financial Plan Development
Description: Addresses the application of all aspects of financial planning. Development and presentation of a comprehensive financial plan to a client.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5110 Directed Studies in Family Financial Planning
Description: Directed individual study in Family Financial Planning.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5243 Master's Capstone
Description: An in-depth application of theoretical models and philosophies related to area of specialization.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

FFP 5253 Family Economics
Description: Issues related to the economics of families, household production, and human capital development; economics of crises public policy and family life cycle spending, saving and borrowing; special attention to the role of ethics in family economic issues. A theoretical and a research perspective used to illuminate the concepts in the course. Web-based instruction. Previously offered as HS 5253 and HES 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5303 Fundamentals of Family Financial Planning
Description: The nature and functioning of financial systems, including currencies, markets, monetary and fiscal policy, and supply and demand for land, labor and capital. Focus on the impact of global financial interdependence on individuals and families in the U.S. Current and emerging issues, as well as current research and theory relative to financial systems. Web-based instruction. Previously offered as HES 5303 and HS 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

FFP 5333 Theories and Research in Family Financial Planning I
Prerequisites: Admission to the Great Plains IDEA FFP program.
Description: Introduction of the social science of family finances. Focus on theories of family functioning, microeconomic theory related to family resource allocation decisions, the family as an economic unit, and the interaction of economy and families. Previously offered as HS 5333. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5343 Theories and Research in Family Financial Planning II
Prerequisites: Admission to the Great Plains IDEA FFP program and FFP 5333.
Description: Microeconomic theory as it relates to family resource allocation decisions, theories of household behavior, the lifecycle hypothesis, behavioral economics, behavioral finance, theories of behavioral change, and psychological theories of family well-being. Focus on empirical research investigating household financial decision-making. Previously offered as HS 5343. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5353 Financial Counseling for Family Financial Planning
Description: Theory and research regarding the interactive process between client and practitioner, including communication techniques, motivation and esteem building, counseling environment, ethics, and data intake, verification, and analysis. Legal issues, compensation, technology to identify resources, information management, and current or emerging issues. Web-based instruction. Previously offered as HES 5353 and HS 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5403 Estate Planning for Families
Description: Fundamentals of estate planning process, estate settlement, estate and gift taxes, property ownership and transfer, and powers of appointment. Tools and techniques in implementing effective estate plan, ethical considerations in providing estate planning services, new and emerging issues in the field. Experience with case studies in developing estate plans for varied family forms. Web-based instruction. Previously offered as HS 5403 and HES 5403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5453 Retirement Planning, Employee Benefits and the Family
Description: Study of micro and macro considerations for retirement planning. Survey of various types of retirement plans, ethical considerations in providing retirement planning services, assessing and forecasting financial needs in retirement, and integration of retirement plans with government benefits. Web-based instruction. Previously offered as HS 5453 and HES 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

FFP 5483 Military Family Financial Issues
Description: An overview of topics relevant to the financial planning process, adapting topics to address the unique needs of and resources available to military service members and their families. Topics include status of service member; financial readiness; financial, risk, investment, tax, retirement and estate management; record keeping; cash flow management; credit and debt management; savings; education planning; and special topics. Web based instruction. Previously offered as HS 5483 and HES 5483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

FFP 5503 Housing and Real Estate for Family Financial Planning
Description: Overview of the role of housing and real estate in financial planning process from a theoretical perspective. Taxation, legal aspects, mortgages, and financial calculations related to home ownership and real estate investments. New and emerging issues in the context of housing and real estate. Role of ethics in financial planning including housing and real estate. Previously offered as DHM 5503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5553 Insurance Planning for Families
Description: Study of risk management concepts, tools, and strategies for individuals and families, including life insurance; property and casualty insurance; liability insurance; accident, disability, health, and long-term care insurance; and government-subsidized programs. Current and emerging issues and ethical considerations. Relationships between investment options and employee/employer benefit plan choices. Web-based instruction. Previously offered as HS 5553 and HES 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5603 Investing for the Family's Future
Description: Evaluation of investment markets for the household. Analysis of how families choose where to put their savings. Using the family's overall financial and economic goals to help make informed decisions about which investments to choose. Web-based instruction. Previously offered as HS 5603 and HES 5603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

FFP 5653 Personal Income Tax for Family Financial Planning
Description: Information on income tax practices and procedures including tax regulations, tax return preparation, tax audit processes, appeals process, preparation for an administrative or judicial forum, and ethical considerations of taxation. New, emerging issues related to taxation. Family and individual case studies practice in applying and analyzing tax information and recommending appropriate tax strategies. Web-based instruction. Previously offered as HS 5653 and HES 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

FFP 5663 Survey of Digital Investment Assets
Prerequisites: FFP 5603
Description: Foundational overview of the increasing popularity of digital investment assets, including cryptocurrencies, decentralized protocols and platforms like blockchain technology, and tokens. Students will explore the benefits and risks of investing in digital assets and how this emerging asset class fits within the context of Modern Portfolio Theory. Regulatory challenges and essential financial planning considerations like portfolio management, taxation and estate planning will be examined, in addition to best practices for client communication.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5703 Professional Practices in Family Financial Planning
Description: Challenges of managing financial planning practices, including business valuation, personnel, marketing, client services, ethics and technological applications. Relying on theoretical as well as applied approach, analysis of case studies that provide relevant, practical exposure to practice management issues, with strong emphasis on current research findings. Web-based instruction. Previously offered as HS 5703 and HES 5703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

FFP 5803 Case Studies in Family Financial Planning
Prerequisites: FFP 5303 and FFP 5453 and FFP 5553 and FFP 5603 and FFP 5653 or consent of advisor.
Description: Professional issues in financial planning, including ethical considerations, regulation and certification requirements, communication skills, and professional responsibility. Utilization of skills obtained in other courses and work experiences in the completion of personal finance case studies, the development of a targeted investment policy, and other related financial planning assignments. Web-based instruction. Previously offered as HS 5803 and HES 5803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

Finance (FIN)

FIN 1101 Money 101
Description: Money 101 provides students a fun opportunity to learn basic money management skills. Students will learn about various ways to save for and pay for college and consumer loans. Students will also learn about credit scores, short and long-term savings options, smart spending, and risk management.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 2121 Managing Revenues from Name, Image, and Likeness
Description: Managing Revenues from Name, Image and Likeness provides students an opportunity to learn basic financial knowledge and skills necessary to make financial decisions during college and over their lifetime. Students will also learn the technical aspects of money including debt, taxes, investing, credit, savings, smart spending, and risk management. The course will focus on basic money management with a special emphasis on navigating the potential financial ramifications of the Name, Image and Likeness (NIL) rights. No prior knowledge is required and no textbook is required to be purchased.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 2123 Personal Finance
Description: A first course in the management of the individual's financial affairs. Budgeting, use of credit, mortgage financing, investment and estate planning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 2550 Selected Topics in Finance
Description: Basic topics in finance. Topics are updated each semester. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 2713 Real Estate Principles and Practices
Description: This class is a survey course designed to expose the student to the basics of buying, selling, management and investment in residential and commercial real estate. Excel training is crucial and will be provided. Topics include real estate marketing procedures, agency and brokerage management, property inspection and appraisal, leased and rental properties, and commercial real estate investment and property management. An overview of the 2007-2009 global financial crisis will illustrate the important role of the real estate, banking and investment industries in creating the crisis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 3113 Principles of Finance
Prerequisites: ACCT 2003 (or ACCT 2103 and ACCT 2203)
Description: Operational and strategic financial problems including allocation of funds, asset management, financial information systems, financial structure, policy determination and analysis of the financial environment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 3613 General Insurance
Prerequisites: FIN 3113.
Description: Introduction to the theory and general principles of insurance. A broad analysis of the elements and operation of property, casualty, health and life insurance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 3713 Real Estate Investment and Finance
Prerequisites: FIN 3113.
Description: An introductory course in real estate investment and finance. Financing real estate, financial leverage and financial planning, the institutional structure of mortgage lending, managing risks, investment strategies and decisions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4003 Introduction to Energy Business
Prerequisites: Sophomore standing.
Description: This class covers topics related to energy business broadly defined, including financial decision making. The main focus will be on the oil and gas industry but will also cover renewable energy issues, historical events, geopolitics, and supply/demand in energy. May not be used for degree credit with FIN 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4023 Retirement and Employee Benefit Planning
Prerequisites: FIN 3113
Description: A comprehensive study of the fundamentals and techniques of retirement and employment benefits planning, focusing on regulatory frameworks, retirement plan types, and distribution strategies. Students will learn to evaluate, select, and administer appropriate retirement plans, understanding the tax implications and benefits of each option.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4033 Estate Planning
Prerequisites: FIN 3113
Description: A comprehensive study of the fundamentals and techniques of estate planning. Topics include: property transfers, taxation as applied to estate planning, goals, probate, charitable transfers, estate planning for closely held business interests, will and trust, bypass, gift, liquidity, and postmortem planning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4053 Study Abroad: Contemporary Global Impacts in Finance (G)
Description: A study of business in a country and region that will provide an integrated approach to the rich cultural, commercial, historical, technological, political, economic, and religious issues. The country's role as a political and economic power will be examined. Comparisons of technology, policies, and economies will be made, as well as investigating hurdles and synergies to doing business between that country and the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance
General Education and other Course Attributes: International Dimension

FIN 4063 Applied Financial Studies
Prerequisites: Consent of the instructor.
Description: Structured internship or field project with supporting academic study. Previously offered as FIN 4463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4103 Securities Industry Essentials
Prerequisites: FIN 3113
Description: The Financial Industry Regulatory Authority (FINRA) has introduced the Securities Industry Essentials® (SIE®) Exam, which is aimed at individuals aspiring to become professionals in the securities industry. The FIN SIE Course is designed to equip students with the necessary knowledge and skills pertaining to the subjects covered in the FINRA SIE exam. May not be used for degree credit with FIN 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4113 Financial Markets and Institutions
Prerequisites: FIN 3113 or concurrent enrollment.
Description: Money and capital markets, flow-of-funds, commercial banks and other financial intermediaries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4213 International Financial Management
Prerequisites: FIN 3113.
Description: Financial management topics unique to business firms operating in an international environment. Topics include global economic and business environments, international monetary system, foreign exchange markets, foreign exchange risk and management, foreign direct investment, and trade finance. Recent and current international financial events.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4223 Investments
Prerequisites: FIN 3113 and STAT 2013, STAT 2023, or STAT 2053.
Description: Various approaches to selecting and timing investment opportunities, e.g., common stocks, bonds, commodities and options. Modern concepts of portfolio theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4233 Financial Planning Capstone Course
Prerequisites: FIN 3113; Also, the student must have already taken at least two of the following courses with a grade of C or better: FIN 3613, FIN 4023, FIN 4033, FIN 4223, and/or ACCT 4703.
Description: Capstone course in the Financial Planning (FP) area. FP topics and process covered to give students the ability to deliver professional and competent financial services to the public. Students study mini-cases and write a comprehensive financial plan as key requirements of the course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4333 Financial Modeling
Prerequisites: FIN 3113 and STAT 2013, STAT 2023, or STAT 2053.
Description: Theories and practice applicable to the financial administration of a firm. A variety of teaching methods used in conjunction with readings and cases to illustrate financial problems and techniques of solution.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4343 Valuation and Financial Modeling
Prerequisites: FIN 3113, FIN 4333 with a "B" or better.
Description: This course focuses on valuing entire business enterprises. The major course topic is estimating corporate value via the comparable companies approach, the discounted cash flow (DCF) approach, and the precedent transactions approach. May not be used for degree credit with FIN 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4363 Energy Finance
Prerequisites: FIN 3113.
Description: Introduction to basic terminology, industry structure, and supply and demand outlook in the oil, gas and power industries. A broad analysis of applications in the energy industry including financial statement analysis, valuation, risk analysis in capital budgeting, risk management, alternative energy topics and energy specific case studies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4443 Banking Strategies and Policies
Prerequisites: FIN 3113, and ECON 3313 or concurrent enrollment in ECON 3313.
Description: Theories and practices of bank asset management; banking markets and competition.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4453 Bank Decision Simulation and Analysis
Prerequisites: FIN 3113 and FIN 4443.
Description: Student teams assume the roles of senior bank officers, making decisions regarding bank assets, funding, product pricing, financial leverage, profit enhancement, risk management, and staffing. Decisions implemented through computer simulation, incorporating the decisions into an environment where the decisions of competing management teams and the local economy determine bank profitability and shareholder value. Evaluation of students' abilities to create shareholder value and effectively communicate planning and analysis through written and spoken reports.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4550 Selected Topics in Finance
Prerequisites: FIN 3113 or consent of instructor.
Description: Advanced topics in finance. Topics are updated each semester. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4633 Essentials of Quantitative Finance
Prerequisites: FIN 3113
Description: This course covers applying quantitative financial methods using the Python programming language. Finance topics are covered as a means of learning Python. Students will learn how to use programming and large datasets to analyze investments and securities markets.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4653 Bond Markets
Prerequisites: FIN 3113 and FIN 4113.
Description: Provides a broad introduction to treasury, corporate, municipal, mortgage backed, and asset backed bond markets. The analytical techniques for valuing bonds, quantifying their exposure to changes in interest rate and credit risk exposures and investment decision-making are explored. Concepts are applied through case studies and projects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4713 Real Estate Valuation & Appraisal
Prerequisites: FIN 3713
Description: This course introduces students to the real estate valuation process for both residential and income-producing properties. The course begins with a review of real property interests, the economic foundations of value, and the market in which real property interests are traded. Real estate valuation techniques and tools are covered. The course highlights the function of valuation within the broader real estate market and explores strengths and weaknesses of traditional approaches.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4763 Financial Futures and Options Markets
Prerequisites: FIN 4223.
Description: Foundation in financial futures and options markets. A balance of institutional detail necessary to understand the structure of these markets and the theoretical developments necessary to apply the contracts to various uses. The use of financial futures and options to manage price risk.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4813 Portfolio Management
Prerequisites: FIN 3113 and FIN 4223 with a grade of "C" or better and consent of instructor.
Description: Overview of portfolio management from the point of view of a trust officer, mutual fund manager, pension fund manager, or other manager of securities. Emphasizes the need of financial managers for an understanding of problems, trends, and theory of portfolio management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4833 Student Managed Investment Fund
Prerequisites: FIN 4223 with a grade of "B" or better AND consent of instructor.
Description: Security valuation and portfolio management practicum course involving investing decisions using real money. Content includes applying financial theories and models to real world practice. Includes research-based fundamental analysis and valuations of current portfolio holdings and prospective holdings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4843 Risk Management
Prerequisites: FIN 3113.
Description: Introduction to relevant analytical tools necessary for the effective management of risk. Previously offered as FIN 4613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 4853 Student Managed Investment Fund II
Prerequisites: FIN 4833 with a grade of "B" or better and consent of instructor.
Description: Advanced security valuation and portfolio management practicum course involving investing decisions using real money. Content includes applying financial theories and models to real world practice. Includes research-based fundamental analysis and valuations of publicly traded companies. Increased emphasis on portfolio management and asset allocation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Finance

FIN 5000 Masters Research and Thesis
Prerequisites: Good standing in Master of Science in quantitative financial economics program and consent of program coordinator.
Description: Research and thesis for master's students. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Finance

FIN 5003 Introduction to Energy Business
Description: This class covers topics related to energy business broadly defined, including financial decision making. The main focus will be on the oil and gas industry but will also cover renewable energy issues, historical events, geopolitics, and supply/demand in energy. May not be used for degree credit with FIN 4003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5010 Finance Projects and Independent Studies
Prerequisites: Good standing in graduate program and consent of project adviser and consent of department head.
Description: Graduate projects and independent study in finance. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Finance

FIN 5013 Business Finance
Prerequisites: Admission to a SSB graduate program and ACCT 5183 or equivalent, or consent of MBA director or instructor.
Description: Introduction to key business finance polices and to tools, techniques, and institutional background needed to make effective financial decisions. Learning goals include: (1) general understanding of financial markets and the corporate organization, (2) understanding the concept of time value of money and its applications, (3) learning about fixed income and equity securities and their valuation, (4) understanding capital budgeting principles and their evaluation, (5) estimation of cost of capital and its role in financial decisions, and (6) introduction to capital structure policy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

FIN 5053 Theory and Practice of Financial Management
Prerequisites: Admission to a SSB graduate program and FIN 5013 or equivalent and ACCT 5183 or equivalent or consent of the MBA director or instructor.
Description: Course is intended for students aspiring to careers in financial management in corporations and/or financial institutions. Extends FIN 5013 to cover real-world applications in financial statement analysis, corporate financial decisions including advanced capital project evaluation, corporate risk management, mergers & acquisitions, and corporate restructuring. Cases, problems, and readings to illustrate various financial problems and techniques of solution.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5103 Securities Industry Essentials
Description: The Financial Industry Regulatory Authority (FINRA) has introduced the Securities Industry Essentials® (SIE®) Exam, which is aimed at individuals aspiring to become professionals in the securities industry. FINRA SIE Exam is now a requirement for many entry level securities industry jobs. The FIN 5103 SIE Course is designed to equip students with the necessary knowledge and skills pertaining to the subjects covered in the FINRA SIE exam. May not be used for degree credit with FIN 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5153 Corporate Financial Strategy
Prerequisites: Admission to a SSB graduate program and FIN 5013 or equivalent and ACCT 5183 or equivalent or the consent of the MBA director or instructor.
Description: Strategic financial decisions and their implementation, including capital structure policy, capital budgeting, risk assessment and management, corporate restructuring, management performance assessment, cost of capital, financial resource planning, dividend policy, and capital raising. Familiarity with basic financial tools and techniques including time value of money, asset pricing and security valuation, and financial statement analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5213 International Business Finance
Prerequisites: FIN 5013.
Description: Theories and financial management practices unique to business firms which operate in, or are influenced by, an increasingly global economy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5223 Investment Theory and Strategy
Prerequisites: Admission to a SSB graduate program, 5013 or the consent of MBA director or the instructor.
Description: Selected investment topics and advanced portfolio management techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

FIN 5243 Innovations in Quantitative Finance
Description: Concepts in this course will cover technical skills important for a quantitative analyst with emphasis on programming and application development. Topics include trading algorithms, energy demand modeling, risk measures, advanced portfolio optimization under constraints, among other topics. Special attention will be given to concepts and applications that investors, money managers, wealth managers, financial managers, and risk managers utilize in their decision making and risk management processes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5333 Corporate Governance
Prerequisites: FIN 5013.
Description: The theoretical and applied analysis of the governance structure of a corporation. The interconnections of the board of directors, CEO, management and shareholders. Case problems and readings address the advantages and disadvantages of various corporate governance practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5343 Valuation and Financial Modeling
Prerequisites: FIN 5013.
Description: This course focuses on valuing entire business enterprises. The major course topic is estimating corporate value via the comparable companies approach, the discounted cash flow (DCF) approach, and the precedent transactions approach, and the precedent transactions approach. May not be used for degree credit with FIN 4343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

FIN 5363 Energy Finance
Prerequisites: FIN 5013 or equivalent.
Description: Introduction to basic terminology, industry structure, and supply and demand outlook in the oil, gas, and power industries. A broad analysis of applications in the energy industry including financial statement analysis, valuation, risk analysis in capital budgeting, risk management, alternative energy topics and energy specific case studies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

FIN 5400 Practicum In Quantitative Finance
Prerequisites: Consent of Director of MS in Quantitative Finance and satisfactory completion of six hours of FIN 5000 level courses.
Description: Professionally supervised experience in Quantitative Finance projects for which the student assumes a degree of professional responsibility. Activities approved in advance by the Instructor and must reflect graduate level analysis. May consist of full or part-time Quantitative Finance experience, on campus or in industry, or both, either individually or as a responsible group member. Periodic reports, both oral and written, required as specified by the Instructor. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Finance

FIN 5550 Special Topics in Finance
Prerequisites: Consent of instructor.
Description: Theoretical and applied aspects of specialized financial areas. Evaluation of models, current trends and problems. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5633 Computational Finance
Description: This course covers applying quantitative financial methods using the computer programming language, Python. Finance topics are covered as a means of learning Python. Students will learn advanced Python programming topics including Monte Carlo simulation, partical differential equations, option valuation, data analysis, and other financial models.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

FIN 5653 Bond Markets
Prerequisites: Consent of the instructor.
Description: This course provides a mathematically rigorous introduction to fixed income markets. Specific attention is given to 1-factor and 2-factor models, their theoretic foundations and how to calibrate them to market data.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5763 Derivative Securities and the Management of Financial Price Risk
Prerequisites: FIN 5013 or consent of instructor.
Description: Differing amounts of financial price risk for individuals and corporations in volatile financial environment. The development of arbitrage-based models for the pricing of derivative securities, and the use of a full range of derivative securities to manage exposure to financial price risk.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5773 Financial Engineering
Prerequisites: MATH 4513 and FIN 5763 or consent of instructor.
Description: Techniques for the design, development and implementation of innovative financial instruments and processes to the formulation of creative solutions of problems in finance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5813 Portfolio Management
Prerequisites: FIN 5223
Description: Overview of portfolio management from the point of view of a trust officer, mutual fund manager, pension fund manager, or other manager of securities. Emphasizes the need of financial managers for an understanding of problems, trends, and theory of portfolio management. May not be used for degree credit with FIN 4813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

FIN 5833 Student Managed Investment Fund
Prerequisites: Graduate standing AND consent of instructor.
Description: Security valuation and portfolio management practicum course involving investing decisions using real money. Content includes applying financial theories and models to real world practice. Includes research-based fundamental analysis and valuations of current portfolio holdings and prospective holdings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

FIN 5853 Student Managed Investment Fund II
Prerequisites: FIN 5833 with a grade of "B" or better "and" consent of instructor.
Description: Advanced security valuation and portfolio management practicum course involving investing decisions using real money. Content includes applying financial theories and models to real world practice. Includes research-based fundamental analysis and valuations of publicly traded companies. Increased emphasis on portfolio management and asset allocation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 5883 Quantitative Financial Applications
Prerequisites: FIN 5223 and consent of the head of the department.
Description: Application of financial solution techniques through directed case work in appropriate business and public sector settings. Simulation, small group instruction and field-based experiences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 6053 Financial Theory and Corporate Policy
Prerequisites: Consent of the instructor.
Description: Theoretical and empirical underpinnings of modern corporate finance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Finance

FIN 6660 Seminar in Finance
Prerequisites: Consent of instructor.
Description: Advanced research with emphasis on theoretical problems and solutions. Selected topics covered. Offered for variable credit, 3-6 credit hours, maximum of 12 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Finance

Fire and Emergency Management Program (FEMP)

FEMP 3103 Introduction to Emergency Management (S)
Description: An overview of the history and philosophy of the current emergency management system. Concepts, issues and programs associated with the development of an emergency management program. Local, state and federal roles and responsibilities for responding to disasters and emergencies with emphasis on man-made natural and technological hazards. This course is the same as POLS 3813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage
General Education and other Course Attributes: Society & Human Behavior

FEMP 3733 Emergency Management: Preparedness and Response
Description: Introduction to preparedness and response activities for emergency personnel and managers. Covers components, policies, programs and organizations related to preparedness and response. Illustrates course concepts with case studies. This course is the same as POLS 3733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 3763 Emergency Management: Recovery and Mitigation
Description: Introduction to recovery and mitigation activities for emergency personnel and managers. Covers components, policies, programs and organizations related to recovery and mitigation. Illustrates course concepts with case studies. This course is the same as POLS 3763.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 4000 Topics in Emergency Management
Description: Examination of timely topics and issues in Emergency Management. May be repeated with different topics. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 4050 Independent Study in Emergency Management
Description: Application of major relevant theoretical perspectives to selected case studies of problems and issue areas in emergency management. Theories and case studies selected in collaboration between faculty and student. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

FEMP 5000 Thesis
Prerequisites: Graduate standing and permission of instructor.
Description: Thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Same course as POLS 5000.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

FEMP 5013 Research Design & Methodology
Prerequisites: Graduate standing.
Description: Overview of research design methods and skills necessary for conducting research projects, including: conceptualization and operationalization, literature review, deductive and inductive theorizing, hypothesis testing, quantitative and qualitative data collection and analysis, maintaining research records, experiment design, data validation, result presentation, and research ethics. Same course as FSEP 5013 and MERO 5013. Previously offered as POLS 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5023 Quantitative Methods for Fire and Emergency Management I
Prerequisites: Graduate standing and FEMP 5013 or consent of instructor.
Description: Fundamental methodological issues in the scientific study of fire administration and emergency management. Computer data manipulation and analysis. This course is the same as POLS 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5053 Evidence-Based Decision Making for FCEM
Description: This graduate seminar introduces evidence-based decision making for leadership with a focus on applications in fire, safety, construction, and emergency management. The course emphasizes critical thinking, hands-on information gathering and analytical skills, and the ethical use of information and metrics in decision-making contexts, including high-stakes decision making for emergency and safety professionals. May not be used for degree credit with FSEP 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5133 Fundamentals of Fire Administration
Description: This course is a graduate-level introduction to the management, leadership, and organizational structures in the fire service. Additionally, this class introduces administrative aspects of managing a fire department or other fire service related organization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5143 Fundamentals of Emergency Management
Description: This course is a graduate-level introduction to the policies, practices, administrative, and leadership functions of emergency management organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5213 Disaster Response
Prerequisites: Graduate standing.
Description: Review of scientific literature on human and organizational behavior in response to disasters. Identification of actors involved in emergency response, their roles and responsibilities. Examination of human response in context of organizational structures and resources including emergency operating centers. Review of local and national government response policies. This course is the same as POLS 5933.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5223 Preparedness and Planning
Prerequisites: Graduate standing.
Description: Planning and training for hazards and disaster management at the organizational level; review of public education and preparedness efforts at the household and community level, review of research on disaster planning. This course is the same as POLS 5923.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5233 Disaster Recovery
Prerequisites: Graduate standing.
Description: Processes, conditions and components of recovery in disaster contexts. Topics include environmental, economic, housing, infrastructure and policy. Roles of voluntary organizations; securing and managing resources. This course is the same as POLS 5383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5243 Mitigation
Prerequisites: Graduate standing.
Description: Structural and non-structural mitigation approaches to hazard reduction; description of policies, programs and planning methods relevant to all governmental levels; and review of research and case studies of mitigation efforts. This course is the same as POLS 6313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5303 Introduction to Fire and Emergency Management
Prerequisites: Graduate standing.
Description: Examines the content and historical evolution of fire and emergency management including terminology, concepts, theories and methods employed. Previously offered as POLS 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5313 Political and Community Relations for Fire and Emergency Management Administration
Prerequisites: Graduate standing.
Description: Navigating the political and policy context of emergency services administration including understanding how to develop and pass legislation and municipal codes affecting emergency services. Other topics include communicating with politicians, other agency administrators, and the community and building coalitions with relevant actors, agencies and governments. This course is the same as POLS 6213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5323 Leadership and Management for Fire and Emergency Management
Prerequisites: Graduate standing.
Description: Introduction to leadership and administrative processes required to deliver fire and emergency services; detailed examination of the social, political and economic issues that have an impact on service delivery and leadership and management approaches for emergency services. This course is the same as POLS 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5333 Incident Command
Description: The purpose of the course is to understand current issues in Incident Command both nationally and globally. This will be done by, 1. identifying and describing the major issues in incident command; and 2. relating research and theory to complex incidents.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5413 Budgeting for Fire and Emergency Management
Description: Applying budgeting and finance theory to fire, emergency management, and other emergency service agencies, including principles of revenues and expenditures, which may include grant application and administration.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5423 Workforce Management for Fire and Emergency Management
Description: Current practices, problems and issues in labor administration for fire and emergency services agencies, including managing human resources, labor relations, affirmative action policies, and community representation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5613 Complex Emergencies
Prerequisites: Graduate standing.
Description: This course examines complex emergencies from an emergency management perspective. We will look at the collapse of governance, the causes of armed conflict, food insecurity, infectious disease, natural disasters, and so on, and examine specific cases in detail. Furthermore, we will look at how the international community responds to these crises, and which agencies are involved in relief efforts. We will apply the traditional four phases of disaster management to these situations. This course is the same as POLS 5943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5623 Emergency Management in the International Setting
Prerequisites: Graduate standing.
Description: Introduction to emergency management in the international setting. Provides background for students who may work with international assistance programs or who may become involved in the delivery of emergency management services abroad as part of an international assistance effect. This course is the same as POLS 5693.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5633 Emergency Management and Public Policy in the United States
Prerequisites: Graduate standing.
Description: Examination of natural and man-made disasters in the U.S. along with the policies and programs intended to prevent, respond to, mitigate, and recover from such events. The evolution of the U.S. Emergency Management System, the emergency management profession, and future directions in emergency policy. This course is the same as POLS 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5643 Politics of Disaster
Prerequisites: Graduate standing.
Description: Situates disaster phases in the political context at the local, national and international levels. Examines research on specific events and their interactive effects between the political system and various phases of disaster. This course is the same as POLS 5393.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5653 Hazard, Vulnerability, and Risk Analysis
Prerequisites: Graduate standing.
Description: Introduction to hazard, vulnerability and risk analysis (HVRA) techniques in fire and emergency management. Explains the role and uses of HVRA in decision-making, public policy and emergency management planning. This class is the same as POLS 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5810 Special Topics Seminar in Fire and Emergency Management
Prerequisites: Graduate standing.
Description: Specialized topics in emergency management. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours. This course is the same as POLS 5300.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5820 Special Topics Seminar in Emergency Management
Description: Specialized topics in emergency management. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5830 Special Topics Seminar in Fire Administration
Description: Specialized topics in fire administration. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 5840 Directed Study in Fire and Emergency Management Administration
Description: Directed study for masters and doctoral students in specialized areas of fire and emergency management. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

FEMP 5903 Applied Project in Fire and Emergency Management Administration
Prerequisites: Consent of instructor.
Description: Supervised applied project in Fire and Emergency Management Administration. Same course as POLS 5903.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

FEMP 6000 Dissertation
Prerequisites: Graduate standing and permission of instructor.
Description: Research for PhD dissertation. Offered for variable credit, 1-12 credit hours, maximum of 60 credit hours. Same course as POLS 6000.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

FEMP 6013 Qualitative Methods for Fire and Emergency Management
Prerequisites: Graduate standing and FEMP 5013 or consent of instructor.
Description: Qualitative methods for collecting and analyzing data regarding fire administration and emergency management. This course is the same as POLS 6013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6023 Quantitative Methods for Fire and Emergency Management II
Prerequisites: Graduate standing and FEMP 5013 and FEMP 5023 or consent of instructor.
Description: An advanced course that builds on the introductory level of statistics. Develop a systematic and critical understanding of alternative quantitative approaches and methodologies of fire and emergency management research. This course is the same as POLS 6123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6033 Topics in Advanced Qualitative Methods for FEMP
Description: Advanced specialized topics in qualitative coding, analysis, and data gathering methods for fire administration and emergency management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6043 Topics in Advanced Quantitative Methods for FEMP
Description: Advanced specialized topics in quantitative analysis and modeling methods for fire administration and emergency management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6103 Proseminar in Fire and Emergency Management
Prerequisites: Graduate standing.
Description: Examines scope of the fire and emergency management field as an area of academic inquiry. This course is the same as POLS 6003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6113 Fire and Emergency Services Administration Theory and Practice
Description: Examines the content and historical evolution of fire administration including terminology, concepts, theories, and methods employed. Previously offered as FEMP 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6123 Emergency Management Theory and Practice
Description: Examines the content and historical evolution of emergency management, current state of science including terminology, concepts, theories, and methods employed. Previously offered as FEMP 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6303 Populations at Risk
Prerequisites: Graduate standing.
Description: Describes populations at risk for increased injury, death and property loss. Identifies policies, programs and resources for risk reduction. Applies research for purposes of planning and capacity building. This course is the same as POLS 6303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6313 Comparative and International Dimensions of Emergency Management
Prerequisites: Graduate standing.
Description: Comparative analysis of the organization, management and policies of fire and emergency response services in other countries. This course is the same as POLS 6203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6323 Organizational Behavior in Disasters
Prerequisites: Graduate standing.
Description: Theoretical overview of organizational behavior in a disaster context. How organizations respond, adapt, fail and succeed when disrupted by disaster. Role of formal and informal organizational structures in confronting disasters. This course is the same as POLS 6343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6413 Seminar Risk Theory and Management
Description: This course examines the risk literature from a perspective of individual and societal risk perception, regulation of risk, risk mitigation, legal aspects, legal aspects of risk and applies these literatures to natural and manmade hazards and disasters.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6810 Advanced Special Topics Seminar in Fire Administration
Prerequisites: Graduate standing.
Description: Specialized topics in fire administration. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours. This course is the same as POLS 6300.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6820 Advanced Special Topics Seminar in Emergency Management
Prerequisites: Graduate standing.
Description: Specialized topics in Emergency Management. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FEMP 6840 Directed Readings in Fire and Emergency Management
Prerequisites: Graduate standing or consent of instructor.
Description: Directed readings for doctoral students in specialized areas of fire and emergency management. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours. This course is the same as POLS 6040.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

Fire Protection & Safety Tech (FPST)

FPST 1103 Applied Techniques in Fire Suppression
Description: Provides requisite knowledge to achieve basic certifications in fire suppression and emergency operations for municipal and industrial fire protection.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 1203 Applied Techniques in Emergency Operations
Description: Provides requisite knowledge to achieve advanced certifications in fire suppression and emergency operations for municipal and industrial fire protection.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 1213 Fundamentals of Fire Protection and Safety
Description: "The Fire Problem" Physical, chemical and electrical hazards and their relationship to loss of property and/or life. Safe storage, transportation and handling practices to eliminate or control the risk of fire in the home, business and industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 1373 Fire Suppression and Detection Systems
Description: The design, installation, maintenance and utilization of portable fire-extinguishing appliances and pre-engineered systems. Operational capabilities and utilization requirements of fire detection and signaling systems. Fire detection and suppression applied in practical laboratory problems.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 2023 Industrial and Occupational Safety
Prerequisites: A grade of "C" or better in FPST 1213 and a grade of "C" or better in either MATH 1613 or MATH 1715 or MATH 1813 or MATH 2123 or MATH 2144 or an ALEKS score of 65.
Description: Occupational facilities, equipment and operations and their inherent hazards. Directed toward worker, machine and environmental control.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 2050 Studies in Loss Control
Prerequisites: Consent of instructor and adviser.
Description: Problems in applied fire protection technology, occupational safety, industrial hygiene or hazardous materials management of particular interest to the loss control specialist. Offered for variable credit, 1-4 credit hours, maximum of 6 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

FPST 2153 Fire Protection Management
Description: Applied human relations, technical knowledge and skills for achieving optimum effectiveness from a fire protection organization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 2243 Design and Analysis of Sprinkler Systems
Prerequisites: Grade of "C" or better in (FPST 2483 and (ENGR 1322 or CET 2253)) or (MAE 3333 and (ENGR 1332 or ENGR 1322)).
Description: Detailed current standards for selection, design, installation, operation and maintenance of automatic fire suppression systems. Laboratory problems on applicable technological principles.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 2343 Elements of Industrial Hygiene
Prerequisites: Grade of "C" or better in STAT 2013, CHEM 1515 or CHEM 1225 or CHEM 1414.
Description: Toxic or irritating substances, physical, biological, ergonomic and other occupational stress factors causing employee illness or discomfort. Environmental pollution sources and controls. Previously offered as FPST 2344.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 2483 Fluid Mechanics for Fire Protection
Prerequisites: Prior (grade of "C" or better) or concurrent enrollment in FPST 1373. A grade of "C" or better in MATH 1613 or MATH 1715 or MATH 1813 or MATH 2123 or MATH 2144 or an ALEKS score of 65.
Description: Fluid flow through hoses, pipes, pumps and fire protection appliances. Water supply and distribution analysis using hydraulic calculations. Testing techniques to detect anomalies in design or performance capabilities.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 2650 Technical Problems and Projects
Description: Special problems or projects assigned by advisers with the approval of the department head. A comprehensive written report or equivalent creative effort. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

FPST 3013 Safety Management (S)
Prerequisites: A grade of "D" or better in ENGL 1113 or ENGL 1123 or ENGL 1313. Must be enrolled in one of the following classes: Sophomore (SO), Junior (JR), or Senior (SR).
Description: Understanding and implementing techniques for a safer work environment. Recognition, evaluation and control of occupational health and safety hazards. Accident prevention, accident analysis, training techniques, worker's compensation insurance, guarding and personal protective equipment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage
General Education and other Course Attributes: Society & Human Behavior

FPST 3113 Advanced Special Hazard Suppression and Detection
Prerequisites: FPST 2483 or ENSC 3233 or MAE 3333.
Description: Design and analysis of special hazard suppression and detection systems using code requirements. Emphasis is also placed on the ability to select the appropriate system for a given hazard. May not be used for degree credit with FSEP 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 3143 Life Safety Analysis
Prerequisites: A grade of “C” or better in FPST 1373 or CMT 3463 or ARCH 2263.
Description: Life safety concepts related to building codes including means of egress design criteria and components, exits, component details, occupancy types, occupancy load, emergency lighting, marking of means of egress, evacuation movement, human performance capabilities, human response to fire cues, occupant pre-evacuation, and toxicology.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 3213 Human Factors in Accident Prevention
Prerequisites: Grade of "C" or better in (STAT 2013, STAT 4013, or STAT 4033) and (GENT 2323 or ENSC 2113).
Description: Human factors and workplace ergonomics as it relates to the prevention of accidents and workplace injuries. Fundamentals and techniques of task analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 3373 Fire Dynamics
Prerequisites: A grade of "C" or better in (CHEM 1414 or CHEM 1215 or CHEM 1515), (MATH 2133 or MATH 2153), (FPST 2483 or MAE 3333).
Description: Fundamentals of thermochemistry, vent flows, heat transfer, ignition of liquids and solids, compartment fire phenomena, and introduction of computer fire modeling. Previously offered as FPST 4373.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 3383 Building Electrical Systems
Prerequisites: A grade of C or better in FPST 1373 and a grade of C or better in PHYS 2014.
Description: Detail current standards for design, selection and installation of electrical distribution and utilization equipment. Emphasis on personnel safety and fire prevention using current codes and standards. May not be used for degree credit with FSEP 5163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 3611 Human Behavior in Fire
Description: Concepts related to human behavior in terms of both the decision-making process of individuals and the impact of fire on occupants' ability to respond. May not be used for FSEP 5173.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 3621 Wildland Urban Interface Fire Impact on Infrastructure
Description: Concepts related to wildland urban interface fires in terms of both the identification of hazards and solutions for protecting the building infrastructure. May not be used with FSEP 5173.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 3631 Fire Impact on Tall Building Infrastructure
Description: Concepts related to tall building fires in terms of both the identification of hazards and solutions for protecting the building infrastructure. May not be used with FSEP 5173.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 3713 Hydraulic Design of Automatics Sprinkler Systems
Prerequisites: FPST 1373, FPST 2483, MATH 1513.
Description: Hydraulic calculation technique for the design and analysis of automatic sprinkler fire extinguishing systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 3723 Industrial Fire Pump Installations
Prerequisites: FPST 2483, MATH 1513.
Description: Applications, design and analysis of industrial fire pump installations. Graphical analysis of fire pump contributions to existing fire protection water supply systems emphasized.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 3733 Sprinkler System Design for High Piled and Rack Storage
Prerequisites: FPST 2243, MATH 1513.
Description: Specific design techniques for sprinkler system protection of commodities stored in solid piles or racks over 12 feet in height.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 4050 Special Problems in Loss Control
Prerequisites: Consent of department head.
Description: Special technical problems in fire protection and safety. Offered for variable credit, 1-4 credit hours, maximum of 6 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

FPST 4143 Industrial Ventilation and Smoke Control
Prerequisites: A grade of "C" or better in (FPST 2483 or MAE 3333) and FPST 3373 and (ENSC 2213 or MET 3433 or MET 3453).
Description: Principles of dilution and comfort ventilation; contaminant control; ventilation system testing and guidelines. Design and analysis of smoke management systems in buildings. Performance characteristics of smoke control systems. Previously offered as FPST 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 4153 Issues in Local Government and Fire Services
Prerequisites: FPST 2153, MGMT 3013.
Description: Issues relating to the proper operation of a fire department and the fire department's role within the structure of local government.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 4213 Advanced Building Design and Analysis
Prerequisites: Grade of "C" or better in FPST 2243 or CMT 3463 or ARCH 2263.
Description: Fire protection and life safety concepts and applications in the built environment related to building and fire codes including building height and area, structural fire protection, occupancy classifications, passive fire protection systems, means of egress, active fire protection systems, fire detection systems, and fire department access. May not be used for degree credit with FSEP 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 4233 Advance Exposure Assessment
Prerequisites: Grade of "C" or better in FPST 2344.
Description: Evaluation of CBRNE exposure risks in industry and emergency response including statistical/computational techniques, regulatory obligations, and the use of instrumentation. Same course as FPST 3233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 4333 System and Process Safety Analysis
Prerequisites: Grade of “C” or better in (FPST 2023, STAT 2013, and MATH 2123 or MATH 2144) or grade of "C" or better in (CHE 2033, CHE 3543, and MATH 2144).
Description: Fire and safety techniques to anticipate, recognize and control hazards. Fault Tree, HazOp, FMEA and other process safety techniques.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 4383 Fire and Evacuation Modeling
Prerequisites: A grade of “C” or better in CHEM 1515 or CHEM 1225 or CHEM 1414 and FPST 2483 and MATH 2133 or MATH 2153 and STAT 2013 and GENT 3433 or MET 3433 or ENSC 2213 or GENT 4433 or MET 4433.
Description: Fundamentals of fire dynamics and occupant egress and their numerical approaches for computer models. Practical knowledge of how to use fire and evacuation modeling tools: CFAST, FDS, Pyrosim, and Pathfinder, and how to analyze modeling results. May not be used for degree credit with FSEP 5383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 4403 Hazardous Materials Management
Prerequisites: Grade of "C" or better in FPST 2343, and (CHEM 1225 or CHEM 1414 or CHEM 1515).
Description: An integrated approach to hazardous materials management with emphasis on comprehensive environmental, health, safety, and fire protection program compliance relating to the transportation, storage, use and disposal of hazardous materials and wastes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 4683 Risk Control Engineering
Prerequisites: A grade of "C" or better in FPST 2023, FPST 2343, FPST 2243, FPST 3373, FPST 3013, and ENGL 3323, or Department Permission, Junior Standing.
Description: Analysis of specific processes, equipment, facilities and work practices for detecting and controlling potential hazards, evaluating risk and developing risk control methodologies.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Fire Constr Emergency Manage

FPST 4982 Fire Protection and Safety Projects I
Prerequisites: A grade of “C” or better in ENGL 1113 or ENGL 1123 or ENGL 1313. A grade of "C" or better or concurrent enrollment in ENGL 3323. A grade of "C" or better or concurrent enrollment in FPST 3013.
Description: Two-semester project with team format. Team members work with sponsors and faculty who serve as mentors in fields related to their topics. Students complete topic selection, progress reports, final reports, and poster presentations.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 4992 Fire Protection & Safety Projects II
Prerequisites: A grade of “C” or better in ENGL 3323 and FPST 4982.
Description: Two-semester project with team format. Second of two-semester sequence of senior project courses.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FPST 4994 Fire Protection and Safety Projects
Prerequisites: Grade of "C" or better in ENGL 1113 or ENGL 1123 or ENGL 1313. Grade of "C" or better in FPST 2343, FPST 2243, and FPST 2023. Grade of "C" or better or concurrent enrollment in ENGL 3323, FPST 3013, and FPST 3373.
Description: Students work in small teams on a semester-long design project sponsored by a company, agency, or individual. Team members work with mentors from sponsors and with faculty members in fields related to their topics. Presentations on safety, patent law, product liability, report writing, oral presentations, scheduling and ideation. Oral presentations, progress reports, and a professional log book documenting personal activity and contributions. Previously offered as FPST 4993.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

Fire Safety & Explosion Protection (FSEP)

FSEP 5000 Master's Thesis
Prerequisites: Consent of instructor.
Description: Methods used in research and thesis writing. Offered for variable credit, 1-6 credit hours, maximum of 18 credit hours. Same course as MERO 5000.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

FSEP 5013 Research Design & Methodology
Prerequisites: Consent of instructor.
Description: Overview of research design methods and skills necessary for conducting research projects, including: conceptualization and operationalization, literature review, deductive and inductive theorizing, hypothesis testing, quantitative and qualitative data collection and analysis, maintaining research records, experiment design, data validation, result presentation, and research ethics. Same course as FEMP 5013 and MERO 5013. Previously offered as GENT 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5023 Project Management
Prerequisites: Consent of instructor.
Description: Methods and skills needed to successfully improve your employability and advancement in today's dynamic workforce. Understanding of the responsibilities of project leader and become better prepared to apply these knowledge/skills to the project environment. Previously offered as GENT 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5033 Risk Analysis
Prerequisites: Consent of instructor.
Description: Identification of various risks and analytical treatment of those risks in various work settings, such as energy, mechanical and construction. Previously offered as GENT 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5043 Principles and Impacts of Explosions
Description: Concepts related to understanding explosion phenomena, analyze and calculate explosion pressures, conceptual design of ventilation, suppression or isolation systems. Approaches of explosion protection and evaluation of structural damage and injury potential of blast waves.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5053 Evidence-Based Decision Making
Description: This graduate seminar introduces evidence-based decision making with a focus on applications in fire, safety, construction, emergency management, and public safety. The course emphasizes critical thinking, hands-on analytical skills, and the ethical use of information and evidence in decision-making contexts. Students will learn to source, organize, analyze, and visualize information, while evaluating the implications of their findings for operational strategies, community risk reduction, and public policy. May not be used for degree credit with FEMP 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5060 Emerging Topics in Engineering Technology
Prerequisites: Consent of instructor.
Description: Advanced and emerging topics normally not included in existing MSET program. Repeat credit may be earned with different course subtitles assigned. Same course as MERO 5060. Offered for variable credit, 1-4 credit hours, maximum of 6 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5113 Introduction to Fire Dynamics
Description: Fundamentals principles of combustion and fire. The thermochemistry and physical phenomena of fire.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5123 Advanced Special Hazard Suppression and Detection
Description: Design and analysis of special hazard suppression and detection systems using code requirements. Emphasis is also placed on the ability to select the appropriate system for a given hazard. May not be used with FPST 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5133 Principles of Industrial and Process Safety
Description: Fundamentals of industrial safety in general, chemical release, dispersion, toxicity, fire, and explosion. Safety design for industrial safety and mitigating consequences of catastrophic fire and explosion. Same course as MERO 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5143 Performance Based Design for Life Safety in Fire and Other Hazards
Description: Identification and application of performance based design practices with an emphasis on determining the response and requirements of occupants. Building construction standards and codes to assure maximum life and property safety from fires, explosions and natural disasters. Egress design specifications, human factors and fire protection requirements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5153 Advanced Exposure Assessment
Description: Identification of critical infrastructure and the societal risk caused by its vulnerability. Methods of analyzing the hazards and threats facing critical infrastructure components and the methods of minimizing those risks.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5163 Building Electrical Systems
Description: Detail current standards for design, selection and installation of electrical distribution and utilization equipment. Emphasis on personnel safety and fire prevention using current codes and standards. May not be used with FPST 3383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5173 Explosion and Fire Impact on Infrastructure
Description: Concepts related to explosions, Wildland Urban Interface (WUI) fires, and tall buildings in terms of both the identification of hazards and solutions for protecting the building infrastructure. May not be used with FPST 3611, FPST 3621, or FPST 3631.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5213 Advanced Building Design and Analysis
Description: Fire protection and life safety concepts and applications in the built environment related to building and fire codes including building height and area, structural fire protection, occupancy classifications, passive fire protection systems, means of egress, active fire protection systems, fire detection systems, and fire department access. May not be used for degree credit with FSEP 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5383 Fire and Evacuation Modeling
Description: Fundamentals of fire dynamics and occupant egress and their numerical approaches for computer models. Practical knowledge of how to use fire and evacuation modeling tools: CFAST, FDS, Pyrosim, and Pathfinder, and how to analyze modeling results. May not be used for degree credit with FPST 4383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Fire Constr Emergency Manage

FSEP 5990 Directed Studies
Prerequisites: Consent of instructor.
Description: Individual report topics in fire safety and explosion protection involving processes, equipment, experiments, literature search, theory, computer use or combinations of these. Same course as MERO 5070. Offered for variable credit, 2-4 credit hours, maximum of 4 credit hours.
Credit hours: 2-4
Contact hours: Contact: 2-4 Other: 2-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Fire Constr Emergency Manage

Food Science (FDSC)

FDSC 1133 Fundamentals of Food Science
Description: Food industry from producer to consumer and the current U.S. and world food situations. Previously offered as ANSI 1133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 2103 Regional Diversity in Food Production, Selection and Consumption (D)
Description: Examines the diversity of people associated with food production, selection, and consumption in the United States. Evaluate the cultural diversity in food production workplace and economic and social factors that influence this diversity. Examine various food selection and consumption criteria of varying contemporary cultures based on economic, social, and religious considerations. Previously offered as FDSC 2102.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences
General Education and other Course Attributes: Diversity

FDSC 2143 Introduction to Food Industry Operations
Description: Introduction to Food Industry basics: business planning, food safety regulations, labeling, UPCs, packaging, materials, patents, trademarks, processing, co-packing, and introduction to various food processing techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 2231 The Science of BBQ
Description: Survey, demonstration and participation in preparation techniques of barbecue and the science of selection and preparation of meat for barbecue. Comparison of regional and international methods.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences

FDSC 2233 The Meat We Eat
Description: Overview of all animal, poultry, and fish protein sources used for human consumption, but focusing on red meat. Examination of each phase of production, inspection, safety, grading, processing, preparation, and current issues of the industries. Development of an understanding of the importance of meat in the diet and part of global agriculture. Same course as ANSI 2233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 2253 Meat Animal and Carcass Evaluation
Description: Evaluation of carcasses and wholesale cuts of beef, pork, and lamb. Factors influencing grades, yields, and values in cattle, swine, and sheep. Same course as ANSI 2253.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 3033 Meat Technology
Description: The basic characteristics of meat and meat products as they relate to quality. Product identification, economy, nutritive value, preservation, and utilization. No credit for students with credit in ANSI 2253 or ANSI 3333. Previously offered as ANSI 3033.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 3113 Quality Control
Prerequisites: Introductory microbiology and organic chemistry.
Description: Application of the principles of quality control in food processing operations to maintain the desired level of quality. Previously offered as ANSI 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 3123 HACCP in the Food Industry
Description: Fundamentals of HACCP (Hazard Analysis and Critical Control Points), function of a HACCP system and implementation of HACCP in the food industry. Offered for fixed credit, 2 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 3133 Plant Sanitation for Food Processing Operations
Description: Sanitation and safety of food produced in food establishments, including government recommendations and regulations and illustration of voluntary and mandatory guidelines.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 3154 Food Microbiology
Description: Relationship of microorganisms to food manufacture and preservation, to food spoilage and microbial food poisoning and to various aspects of primary food production. Same course as MICR 3154. Previously offered as ANSI 3154.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 3232 Advanced Meat Evaluation
Description: Advanced evaluation of carcasses and wholesale cuts of beef, pork and lamb. Same course as ANSI 3232. Previously offered as FDSC 3182.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Animal & Food Sciences

FDSC 3310 Advanced Competitive Evaluation
Prerequisites: Honors Program participation, junior standing.
Description: Advanced instruction in animal and/or product evaluation. For students competing on collegiate judging teams. Same course as ANSI 3310. Previously offered as FDSC 3210. Offered for fixed credit, 2 credit hours, maximum of 6 credit hours.
Credit hours: 2
Contact hours: Contact: 6 Other: 6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

FDSC 3333 Meat Science
Description: Anatomical and basic chemical and physical characteristics of meat animals studied. The application of scientific principles to the processing and economical utilization of meat animals, as well as in the manufacture of meat products emphasized in the laboratory. Same course as ANSI 3333.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 3373 Food Chemistry I
Description: Basic composition, structure, and properties of foods and the chemical changes or interactions that occur during processing and handling. Previously offered as ANSI 3373.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 3603 Processing Dairy Foods
Prerequisites: Organic chemistry.
Description: Theory and practice in formulation and processing: butter and margarine, cottage cheese, blue and processed cheeses, evaporated and sweetened condensed milk, ice cream, ice milk, and other frozen desserts. Previously offered as ANSI 3603.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 4053 Foodborne Toxins and Allergens
Description: Food toxicology and food toxicological issues in the industry. Specific types of foodborne toxins and allergens addressed; including naturally occurring toxins, toxins of microbial origin, food additives including nutrients, heavy metals, environmental contaminants and processing-derived toxins. May not be used for degree credit with FDSC 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 4113 Internal Audit and Advanced HACCP
Prerequisites: FDSC 3123.
Description: Verification and validation of the principles of Food Processing Quality Systems to confirm that quality and food safety systems have been implemented adequately and are effective. Topics include: food allergens, internal auditing and implement food safety and food quality programs to ensure consumer protection and prevent economic loss to the industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 4123 Principles of Food Engineering
Prerequisites: MATH 1513.
Description: Application of the engineering approach to solving heat and mass transfer problems in food processing. An introduction to the basic concepts of the conservation laws, fluid flow, heat transfer, refrigeration, freezing, psychrometrics, and energy conservation. Same course as MCAG 4123. May not be used for Degree Credit with FDSC 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 4143 Food Safety Modernization Act
Description: Good manufacturing practices, how to develop preventive controls plan and how to respond to FDA inquiries. FDA standardized curricula developed for FSMA: Animal Food and Human Food rules. May not be used for degree credit with FDSC 5143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 4153 Advanced Food Microbiology
Prerequisites: FDSC 3154 or MICR 3154.
Description: Detection of foodborne pathogens, how pathogens cause disease, conduct investigations into foodborne illnesses, and antimicrobials to control foodborne pathogens. May not be used for Degree Credit with FDSC 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 4213 Advances in Meat Science
Prerequisites: ANSI 3333 or FDSC 3333.
Description: Development of muscle and its transformation to meat. Properties of meat and their influence on water-binding, pigment formation, texture and fiber characteristics. Same course as ANSI 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 4233 Food Safety Audit Schemes
Description: Develop food safety system to satisfy SQF and BRC requirements. Major topics such as how to implement food safety and quality systems and how to prepare for audit. May not be used for degree credit with FDSC 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 4243 Researching Consumer Food Preferences
Prerequisites: AGEC 1113 and ANSI 1124 or FDSC 1133, and STAT 2013 or STAT 2023 or STAT 4013.
Description: Design, implementation, and interpretation of research in consumer food preferences. Includes design of consumer surveys, conducting consumer interviews, preparing food and questionnaires for taste-test experiments, targeting and recruiting scientifically valid samples, the statistical analysis of data, and communication of results. Previously offered as AGEC 4243. May not be used for Degree Credit with FDSC 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 4253 Pre-Harvest Food Safety
Prerequisites: FDSC 3154 or MICR 3154.
Description: Microbial food safety at pre-harvest level. Types, sources, and concentrations of disease-causing pathogens in the food-producing animal environments and fresh produce/seafood environments; methods to control or reduce foodborne pathogens; present and future pre-harvest food safety directions. May not be used for Degree Credit with FDSC 5253.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 4333 Processed Meat
Prerequisites: ANSI 3033 or ANSI 3333.
Description: Meat and meat product composition. Techniques in the molding and forming of meat; sausage formulation; curing; quality control; and cost analysis. Same course as ANSI 4333. May not be used for Degree Credit with FDSC 5833.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 4373 Food Chemistry II
Prerequisites: FDSC 3373.
Description: Chemical/biochemical mechanisms that affect the structure and properties of foods during processing and handling. No credit for FDSC 5373.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 4763 Analysis of Food Products
Description: Application of quantitative chemical and physical methods of analysis to the examination of foods. Previously offered as ANSI 3763. May not be used for Degree Credit with FDSC 5763.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 4900 Special Problems
Prerequisites: Consent of instructor.
Description: A detailed study of an assigned problem by a student wishing additional information on a special topic. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

FDSC 4910 Food Industry Internship
Prerequisites: Consent of instructor.
Description: Full-time internship at an approved production, processing or agribusiness unit or other agency serving the food industry. Maximum credit requires a six month internship in addition to a report and final examination. Graded on a pass-fail basis. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

FDSC 5000 Master's Research and Thesis
Prerequisites: Consent of major adviser.
Description: Research for Master of Science degree in Food Science planned, conducted and reported under guidance of major adviser. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

FDSC 5053 Advanced Foodborne Toxins and Allergens
Description: Food toxicology and food toxicological issues in the industry. Specific types of foodborne toxins and allergens addressed; including naturally occurring toxins, toxins of microbial origin, food additives including nutrients, heavy metals, environmental contaminants and processing-derived toxins. May not be used for degree credit with FDSC 4053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5102 Ethics and Professionalism in Animal and Food Science
Description: Discussion of regulations, laws, and resources; insights on complex ethical issues, including but not limited to research misconduct, how to address, report and find resources during cases of misconduct, conflicts of interest, and authorship; communication of research accurately and objectively to different audiences. Same course as ANSI 5102.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5113 Internal Audit and Advanced HACCP
Description: Verification and validation of the principles of Food Processing Quality Systems to confirm that quality and food safety systems have been implemented adequately and are effective. Topics include: food allergens, internal auditing and implement food safety and food quality programs to ensure consumer protection and prevent economic loss to the industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5120 Special Topics in Food Science
Prerequisites: Graduate standing and consent of instructor.
Description: Advanced topics and new developments in food science. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

FDSC 5123 Principles of Food Engineering
Prerequisites: MATH 1513.
Description: Application of the engineering approach to solving heat and mass transfer problems in food processing. An introduction to the basic concepts of the conservation laws, fluid flow, heat transfer, refrigeration, freezing, psychrometrics, and energy conservation. May not be used for degree credit with FDSC 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5143 Food Safety Modernization Act
Description: Good manufacturing practices, how to develop preventive controls plan and how to respond to FDA inquiries. FDA standardized curricula developed for FSMA: Animal Food and Human Food rules. May not be used for degree credit with FDSC 4143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5153 Advanced Food Microbiology
Prerequisites: FDSC 3154 or MICR 3154.
Description: Detection of foodborne pathogens, how pathogens cause disease, conduct investigations into foodborne illnesses, and antimicrobials to control foodborne pathogens. May not be used for degree credit with FDSC 4153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5213 Advances in Meat Science
Prerequisites: ANSI 3333 or FDSC 3333.
Description: Development of muscle and its transformation to meat. Properties of meat and their influence on water-binding, pigment formation, texture, and fiber characteristics. Same course as ANSI 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5233 Food Safety Audit Schemes
Description: Develop food safety to satisfy SQF and BRC requirements. Major topics such as how to implement food safety and quality systems and how to prepare for audit. May not be used for degree credit with FDSC 4233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5243 Researching Consumer Food Preferences
Prerequisites: AGEC 1113 and ANSI 1124 or FDSC 1133, and STAT 2013 or STAT 2023 or STAT 4013.
Description: Design, implementation, and interpretation of research in consumer food preferences. Includes design of consumer surveys, conducting consumer interviews, preparing food and questionnaires for taste-test experiments, targeting and recruiting scientifically valid samples, the statistical analysis of data, and communication of results. May not be used for degree credit with FDSC 4243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5253 Pre-Harvest Food Safety
Prerequisites: FDSC 3154 or MICR 3154.
Description: Microbial food safety at pre-harvest level. Types, sources, and concentrations of disease-causing pathogens in the food-producing animal environments and fresh produce/seafood environments; methods to control or reduce foodborne pathogens; present and future pre-harvest food safety directions. May not be used for degree credit with FDSC 4253.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 5300 Food Science Seminar
Prerequisites: Graduate standing.
Description: Critical reviews or studies of the scientific research literature related to the field of food science. Oral reports or group discussions. Offered for fixed credit, 1 credit hour, maximum of 3 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5333 Carcass Value Estimation Systems
Prerequisites: Graduate classification.
Description: Analysis of scientific literature regarding carcass composition, quality and palatability. Overview of technology used to evaluate carcass quality factors. Same course as ANSI 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5373 Advanced Food Chemistry
Prerequisites: FDSC 3373.
Description: Chemical/biochemical mechanisms that affect the structure and properties of foods during processing and handling.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 5393 Issues in Food Science
Prerequisites: Graduate classification.
Description: Critical analysis of issues and challenges in the U.S. food industry. Advanced forms of communication to effectively convey information to stakeholders and advocate for a position.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5553 Interpreting Animal and Food Science Research
Prerequisites: STAT 5013 or concurrent enrollment.
Description: Critical evaluation and knowledgeable communication on the design, analyses, and reporting of animal science and food science research. Same course as ANSI 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Animal & Food Sciences

FDSC 5763 Analysis of Food Products
Prerequisites: Organic chemistry.
Description: Application of quantitative chemical and physical methods of analysis to the examination of foods. May not be used for degree credit with FDSC 4763.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 5833 Processed Meat
Prerequisites: ANSI 3033 or ANSI 3333.
Description: Meat and meat product composition. Techniques in the molding and forming of meat; sausage formulation; curing; quality control; and cost analysis. May not be used for degree credit with FDSC 4333.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Animal & Food Sciences

FDSC 6000 Doctoral Research and Dissertation
Prerequisites: MS degree or consent of major adviser.
Description: Independent research for PhD degree in Food Science planned, conducted and reported in consultation of a major professor. Offered for variable credit, 1-10 credit hours, maximum of 30 credit hours.
Credit hours: 1-10
Contact hours: Contact: 1-10 Other: 1-10
Levels: Graduate
Schedule types: Independent Study
Department/School: Animal & Food Sciences

Forensic Sciences (FRNS)

FRNS 5000 Thesis Research & Seminar
Prerequisites: Consent of major adviser.
Description: Research, thesis, and seminar requirement culminating with a master's thesis and degree. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 5013 Survey of Forensic Sciences
Prerequisites: Consent of instructor.
Description: Predominantly online class providing overview of various forensic sciences and how they relate to presentation of evidence and to civil and criminal procedures involved in solving problems of law. Law and ethics, forensic pathology, forensic dentistry and anthropology, forensic toxicology and molecular biology (DNA), forensic nursing and death scene investigation, forensic psychology, criminalistics, questioned documents, forensic engineering and technology, forensic accounting, and management techniques in forensic sciences. A review of current guidelines for knowledge, procedures, quality assurance and control, and certification/accreditation from national standards boards and scientific and technical working groups.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5063 Ethical Research and Scientific Writing
Description: Develops knowledge and skills for ethical scientific research, writing and presentation. Covers responsible conduct, organization and design of research around a scientific question, and writing problems specific to science and the individual.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5073 Quality Assurance in Forensic Science
Prerequisites: Admission to program.
Description: Preparation for the forensic scientist to develop and implement quality assurance and quality control procedures to ensure the excellence of a laboratory. Preparation of laboratory procedures and policies, use of appropriate standards and controls, and validation methods for establishing an effective quality assurance program in the laboratory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5083 Ethics in Forensic Leadership
Description: Focuses on leadership development for managers of forensic organizations, including examination of leadership and ethics theories, application to theories to problems in forensic settings, tasks and relational skills for developing effective teams and groups within an ethical framework.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5090 Internship in Forensic Sciences
Prerequisites: Permission of instructor.
Description: initial course in chosen specialty, permission of advisor and program director, and letter of agreement or contract with designated facility or laboratory. Provides practical training and experience within a work or laboratory setting under the guidance of a designated supervisor. This experience should complement graduate studies in the forensic sciences and support related career goals. Note: requires four hours per week at internship site for each credit hour of enrollment; eight hours per credit for summer session. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 5103 The Chemistry of Pyrotechnics
Prerequisites: Permission of instructor and faculty advisor.
Description: Provide students with a fundamental knowledge of the chemistry of pyrotechnics/low explosives intended to function as propellants, or generate pyrotechnic effects such as light, heat, sound, smoke and color. Emphasizes chemical and thermodynamic principles required to formulate these compositions and which determine their performance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5113 Essential Science for Explosive Operators
Prerequisites: FRNS 5103.
Description: This course will cover the fundamental chemistry and physics needed for Explosives Operators (Bomb Techs, EOD, etc.) to better understand the scientific underpinnings of their field. Relevant principles will be pulled from college level general chemistry, organic chemistry, and physics curriculum, It will be assumed that the student has little to no background knowledge of chemistry or physics but has a solid understanding of explosives terminology and function.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5123 Fire Dynamics in Forensic Investigations
Prerequisites: Permission from Instructor and Faculty Advisor.
Description: Teaches the fundamentals of how chemistry, fire science, fluid mechanics and heat transfer interact to influence fire behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5133 Ordnance Identification and Recognition
Prerequisites: Permission from Instructor and Faculty Advisor.
Description: Provides the fundamentals of a practical deductive process used to identify unknown military ordnance and addresses the safety precautions that should be applied in order to minimize associated hazards.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5143 Methods in Fire and Explosion Investigation NFPA 921/1033
Prerequisites: Permission from Instructor and Faculty Advisor.
Description: Surveys investigative methods in fire and explosion including legal considerations, fire science, building construction, origin determination, interviewing, documenting, evidence collection, deaths and injuries and other emerging trends in scientific testing and research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5153 Explosives Research, Testing and Evaluation Methods
Prerequisites: Permission from Instructor and Faculty Advisor.
Description: Explores explosives characterization methods and explosives range testing methods to include how to develop and document a test plan, test methods and instrumentation while documenting and writing results.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5183 Computer Fire Modeling
Prerequisites: Permission of Instructor and faculty advisor.
Description: Teaches the fundamentals of computational fluid dynamics (CFD) computer fire modeling, using Fire Dynamics Simulator (FDS). Covers topics such as basic conservation equations; Cartesian coordinate systems; use of spreadsheets to facilitate the creation of fire models; how to install and run FDS; how to write the code required to create an FDS model; techniques for modeling fire scenes and verification/validation of fire modeling use.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5213 Molecular Biology for the Forensic Scientist
Prerequisites: Admission to the program.
Description: Develops a solid foundation of knowledge in molecular biology for understanding the concepts of genetic marker analysis, especially DNA typing. Course previously offered as FRNS 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5243 Population Genetics for the Forensic Scientist
Prerequisites: FRNS 5513.
Description: Population genetics relevant to DNA analysis technologies to identify perpetrators of crime. Includes foundation of statistical knowledge in forensic DNA analysis and family relatedness testing, history and application of statistical and population genetic theory to assigning weight to matches in DNA profiles for the court. Course previously offered as FRNS 5242.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5253 Forensic Casework Training
Prerequisites: Acceptance into TPD Lab Experience Program, FRNS 5073.
Description: This course aims to immerse students in a forensic science discipline aligned with their academic concentration. Students will partner with the Tulsa Police Department Forensic Laboratory to complete training in the forensic biology or firearms disciplines. Course instruction will include lectures, assigned readings, laboratory practicals, and a mock trial. The successful student will obtain competency recognition from an accredited forensic laboratory, permitting enrollment in FRNS 5263.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Forensic Sciences

FRNS 5263 Forensic Casework Experience
Prerequisites: FRNS 5253.
Description: This course will allow students to gain independent casework experience at the Tulsa Police Department Forensic Laboratory (TPDFL) by performing biology testing or firearms database entry on actual case evidence. Students will work with a TPDFL technical manager and alongside seasoned forensic scientists to gain applicable and experiential knowledge in an accredited forensic laboratory.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Forensic Sciences

FRNS 5273 Forensic Threat Assessment and Management
Description: Forensic Threat Assessment and Management provides the introductory course for individuals seeking to perform threat assessments. Topics include theory of threats and foundations of threat management plans. There will be a broad overview of different settings and a case study of the Bath Michigan massacre.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5282 Methods in Forensic Sciences
Prerequisites: Permission of instructor.
Description: Advanced-level laboratory course in which students apply knowledge from earlier course work in a hands-on setting and employ fundamental techniques and methods related to forensic biology, forensic microbiology, forensic pathology, or forensic toxicology. Course previously offered as FRNS 5281.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Graduate
Schedule types: Lab
Department/School: Forensic Sciences

FRNS 5293 Violence in Forensic Settings
Description: Violence in Forensic Settings provides an in-depth understanding of why and how individuals harm others. Topics include homicide, assault, sexual violence, among others. Individuals will understand the role of substances and mental health in violence, Finally, students will have the opportunity to learn and understand violence risk assessments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5303 Forensic Investigation of Impaired Vehicle Operation
Description: Forensic Investigation of Impaired Vehicle Operation is designed to introduce a student to the fundamental aspects of investigating incidents involving impaired vehicle operations. Students will learn or review concepts in human performance as they relate to vehicle operation. Some topics will include case law of traffic stops, pharmacology, human performance assessment, mental health, and standardized field sobriety tests.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5323 Forensic Microbiology
Prerequisites: Permission of instructor and basic microbiology recommended.
Description: Basic microbiologic techniques applied to actual forensic situations. Includes rules of evidence applied to investigations with suspected use of microorganisms as bioterrorism agents. Stresses recognition of biological agents, site sampling, and laboratory identification.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5333 Forensic Chemistry
Description: Forensic Chemistry is designed to introduce a student to the fundamental aspects of chemical investigations in forensic science. The goal of this course is to provide students with a solid foundation in forensic chemistry, specifically as it relates to controlled substances, explosives, arson, and trace evidence analysis. Students will learn or review concepts in chemical structure, properties and analysis that are related to forensic investigations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5343 Forensic Investigation of Clandestine Laboratories
Description: Forensic Investigation of Clandestine Laboratories is a graduate level course designed to Introduce a student to the fundamental aspects of investigating hidden or clandestine laboratories (clan labs), Students will learn or review concepts in drug, biological threat agent, and explosives production. Some topics will include biology and chemistry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5353 Forensic Investigations Involving Radiological/Nuclear Materials
Description: Forensic investigations of Rad/Nuc Materials Is designed to Introduce a student to the fundamental aspects of Investigating incidents involving radiological or nuclear materials. Students will learn or review concepts in radioactivity and fusion or fission of nuclear particles that are related to forensic investigations, Some topics will include radiation omission typos, detection, effects of radiation in skin and mechanisms of energy formation in nuclear reactions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5363 Forensic Investigations of Chemical/Biological Incidents
Description: Forensic Investigations of Chem/Bio Incidents is a graduate level course designed to introduce a student to the fundamental aspects of investigating incidents involving chemical or biological weapons. Specific course goals are outlined below, but the main course goal Is for the student to have a thorough understanding of chem/bio incident investigation after successful completion of the course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5413 Forensic Pathology and Medicine
Prerequisites: Consent of instructor.
Description: Medico-legal investigation of death and injury due to natural causes, accidents and violence.Transportation injuries, homicides, suicides, blunt- or sharp-force injuries, gunshot wounds, asphyxia, drowning, and thermal and electrical injuries. Pediatric deaths; rape investigation; injury analysis; interpretive toxicology; identification by dental means; anthropologic studies for determining age, sex and race; and conducting of independent medical examinations. Demonstrations and data analysis from actual cases. Review of current guidelines for knowledge, procedures, quality control/assurance, and certification/ accreditation from national standards boards and scientific/technical working groups.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5423 Blast Injuries and Effects
Prerequisites: Permission of instructor and facultv advisor.
Description: Takes a comprehensive view into the nuances of explosive effects on the human body. Specifically scrutinized will be primary, secondary, tertiary, and quaternary blasts effects on lungs, the cardiovascular system, neurological functions, integumentary systems, long bone extremities, otic, ophthalmic, and psychological. Provides students the opportunity to research a focus area of interest related to casualties of explosive events.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5443 Interdisciplinary Post Blast Investigation
Description: As a result of the discussions, readings, lectures, case studies and research conducted during the class, the student is expected to develop an improved understanding of the forensic fields involved in post-blast investigations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5453 Fingerprints and Their Role in Forensic Science
Description: Fingerprint (or Latent Print) sections play an essential role in forensic labs worldwide, as they can link an individual person to a specific item of evidence. As a comparison science, fingerprint examination relies heavily on the competency of the examiner as well as proper understanding of foundational concepts surrounding the discipline. This introductory course will hep students to better understanding those foundation concepts that the science of fingerprints is built upon.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5463 Blood Stain and Pattern Analysis
Description: This course is intended to act as an introduction to bloodstain pattern analysis. Upon completion of this course, students should have a basic awareness of BPA, including the types of conclusions bloodstain pattern analysts can make, what types of cases can benefit from bloodstain pattern analysis, and be able to separate bloodstain pattern fact from fiction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5473 Forensic Crime Scene Processing
Description: Evidence documentation and recognition of evldentiary value are vital in processing crime scenes. This course will discuss the various techniques and the sciences involved in processing and documenting crime scenes as well as the value of various types of evidence for criminal prosecution. Upon completion or this course, the student will have a better understanding of crime scene documentation through photography, measurements, and new laser scanning technology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5513 Forensic Bioscience
Prerequisites: FRNS 5013; college-level chemistry and biology.
Description: Concepts of toxicology and identity testing, the two areas representing the most extensive application of the fields of chemistry, biology and genetics to forensic science. History, theory, application and quality assurance concepts to the material. Working knowledge of how toxic compounds affect human physiology and how they are identified in the laboratory. Basic concepts in genetics and their application to tracing origin of biological samples in civil or criminal investigations as well as resolving disputed family relationships.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5523 Forensic Toxicology
Description: Introduction of fundamental aspects of forensic toxicology and emphasis on major subfields of postmortem forensic toxicology, human performance toxicology and forensic drug testing. Examination of methodologies and analyses associated with these three major subfields.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5533 Drug Toxicity
Description: Introduces fundamental aspects of abused drugs from a toxicological perspective and examines major disciplines of toxicology. Also covers basic principles of toxicology applied to different classes of commonly abused drugs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5543 Advanced Forensic Toxicology
Prerequisites: FRNS 5523.
Description: Familiarizes the student with advanced aspects of forensic toxicology in view of current forensic toxicological trends. Covers risk assessment principles, factors in pharmacokinetics, weapons of mass destruction, and integrating concepts with current applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5553 Introduction to Forensic Crime Analysis
Description: Introductory course to the profession of Crime Analysis. Prepares individuals to be familiar with the topics covered in the International Association of Crime Analysts-Foundation (LEAF) exam.Topics covered: types of crime analysis and patterns.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5563 Theories in Forensic Crime Analysis
Prerequisites: FRNS 5563.
Description: This course provides a foundational overview of the prominent theories that crime analysts should be familiar with. The course starts with an Introduction to the concept and history of theory development. The course then progresses through the major crime theories, including those on the International Association of Crime Analysts-Foundation exam.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5573 Policing Strategies in Forensic Crime Analysis
Prerequisites: FRNS 5553.
Description: This course provides the necessary information to respond to the results of crime analysis. The course includes a historical overview of policing and law enforcement strategies. Instruction will cover major policing concepts such as predictive policing and CompStat. Students receive information in strategies to reduce certain events, such as traffic fatalities or gun violence. Students are taught the concepts of analysis response reports, program evaluation, and ethics in modern policing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5583 Data and Statistics in Forensic Crime Analysis
Description: This course provides the foundational knowledge required in Forensic Crime Analysis. Information provided will allow students to handle and analyze crime data. The Information will help to prepare the students for the International Crime Analysts-Foundation exam. The course focuses on the important principles of statistics and concepts relevant to crime analysis. Video Lectures, supplemented by homework, are the primary learning tools. Cannot be used for degree credit with FRNS 5963.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5613 Criminalistics and Evidence Analysis
Prerequisites: Admission to program.
Description: Introduction to techniques and tools used for crime scene investigations and analysis of evidence. Introduction to the forensic laboratory, its operation and function, forensically applied scientific concepts, analytical instrumentation and microscopy, and documentation, collection and preservation of physical evidence. Review of FBI-sanctioned working group guidelines for evidence gathering, evidence handling, quality control and accreditation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5622 Crime Scene Laboratory and Moot Court Experience
Prerequisites: Graduate standing.
Description: Application of strategies/techniques for effective crime scene investigation in laboratory or mock crime scene setting. Covers the duties of the first officer at the crime scene, the crime scene investigator/evidence collector, and analysis of evidence in the forensic laboratory. Builds on concepts from prerequisite courses for hands-on exercises.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Graduate
Schedule types: Lab
Department/School: Forensic Sciences

FRNS 5633 Open Source Intelligence
Prerequisites: FRNS 5673
Description: This course provides a comprehensive exploration of Open Source Intelligence (OSINT) and its application in forensic and intelligence investigations. Students will examine the principles, methodologies, and tools used to collect, analyze, and interpret publicly available information from diverse sources, including social media, government records, data brokers, academic repositories, and the deep and dark web. Emphasis will be placed on both the practical and ethical dimensions of OSINT, including privacy considerations, data reliability, and legal frameworks.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5643 Law and Expert Evidence: Firearms and Toolmarks
Description: This course will give students a working knowledge of federal firearm laws, including tips and techniques for prosecution, courtroom presentation, and expert testimony. In addition, the course touch on state firearm laws and the best resources to locate and familiarize yourself with regulations. We will discuss the requirements for the admission of toolmark evidence in court and the current state of the law in this scientific field.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5653 The Law and Expert Evidence
Prerequisites: Admission to program.
Description: Review of ways that the law, particularly the law of evidence, affects the work of the forensic scientist. The beginning of the case, most often the crime scene, through the legal process, through trial and including appeals and motions for a new trial. Legal doctrines of interest to the forensic scientist, such as chain of custody, work product privileges, laying of the proper foundation, exhibits, and the standards necessary to obtain a new trial.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5663 Destructive Devices/Explosives: Law and Regulations
Prerequisites: Permission of instructor and faculty advisor.
Description: Involves a survey of the legal principles relevant to explosives and arson, including caselaw, statutes, and regulations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5673 Introduction to Forensic Intelligence Analysis
Prerequisites: Permission of instructor and faculty advisor.
Description: This course provides a comprehensive overview of forensic intelligence analysis, emphasizing its application within law enforcement and criminal investigations. The course will examine how forensic science integrates with intelligence work to identity criminal patterns, analyze networks, and support the resolution of cases ranging from organized crime to terrorism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5683 Digital and Multimedia Evidence for Investigators
Prerequisites: Permission of instructor and faculty advisor.
Description: Digital and Multimedia evidence (DME) is available and useful in almost every single investigation. This course is designed to provide an overview of the DME forensic discipline.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5693 Battlefield Forensics and the Global War on Terror
Description: This course will take a comprehensive look at the evolution of battlefield forensics during the Global War on Terror (GWOT). It focuses on the tactics, techniques and procedures (TTP) of battlefield forensics during the early stages of the GWOT, and the continued development of the use of forensics for the identification and targeting of terrorist on the battlefield. Topics include: the stages of forensic development, establishment of the in-theater laboratories, the evolution of collection techniques, the eventual turning over of the forensic responsibilities to the host nation, and the road ahead.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5703 Psychology of Forensic Intelligence Analysis
Description: This course delves into the psychological elements of forensic intelligence analysis, focusing on how psychological theories and methods inform the understanding of criminal behavior and intelligence work. Through the study of psychological profiling, risk assessment, and case studies in terrorism and organized crime, students will develop a deeper understanding of the intersection between psychology and forensic intelligence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5713 Forensic Psychology
Prerequisites: Consent of faculty.
Description: Introduction to the relationship between the disciplines of law and psychology via examination and contrast of the issues at the interface of both disciplines. Various legal terminology that calls for psychological input; legal and ethical responsibilities of forensic psychologists, criminal behavior, punishment and deterrence, violence and mental illness, competency to stand trial, the insanity defense, eyewitness testimony, the death penalty, and polygraph testing. Exploration of the role of legal and mental health systems in social control, impact of psychological knowledge on functioning of the legal system. Examination of psychological topics and paradigms relevant to study of particular legal subsystems or topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5723 Advanced Forensic Psychology
Prerequisites: FRNS 5713.
Description: Expands on topics covered in FRNS 5713. Covers function of the mental health professional in criminal cases, nature and impact of mental illness on individual life and freedom, reasons behind crimes, gender differences in the criminal justice system, and laws pertinent for mental health professionals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5733 Forensic Victimology
Description: Introduction to victimology, emphasizing victims' issues within the justice system and in medico-legal investigations. Explores impact of crime on victim; correlation between types of victims; crime and offender categories; risk factors; victim-offender and victim-society relationships; the role of victimologist as a researcher and consultant; influences of media, law enforcement, advocacy groups, businesses, and social movements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5743 Forensic Science Seminar
Prerequisites: Graduate standing.
Description: The objectives of this course are to broaden students' perspectives and understanding of a wide range of forensic science disciplines and professions. This course provides an opportunity for students to discover opportunities for continued learning and development. Students will participate In 16 Independently selected continuing education webinars/seminars/podcasts/relevant trainings and complete written assignments.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 5753 Criminal Behavioral Analysis
Prerequisites: Current graduate student status or approval of instructor.
Description: Combines various academic disciplines toward a behavioral examination of the violent criminal offender. By examining the crime scene from a behavioral perspective, the psychodynamics of the offender, the sociological environmental forces, and the social psychological dimensions of the victim-offender interactions are combined for a more holistic understanding of the violent offender.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5763 A Generalist Foundation in Forensic Clinical Examination
Prerequisites: Departmental approval.
Description: The three pillars of forensic examination theory will be covered to include content on clinical examination science, forensic science, and the legal system. The program will prepare the clinician to identify forensic patients; provide trauma-informed; evidence-based clinical care to all patients; assessment of injury and documentation; evidence collection and preservation; legal and ethical issues; preparing for and presenting testimony.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5773 Violence Across the Lifespan
Prerequisites: Departmental approval.
Description: Course will explore the following topics: Violence Against Children, Violence Against Adolescents and Adults, Violence Against Elders, and Death evaluation and investigation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5780 Clinical Aspects of Sexual Assault and Intimate Partner Violence
Prerequisites: Departmental approval.
Description: The course includes the concepts of a coordinated team approach, patient-centered care, forensic evidence collection, the examination process, documentation, medical forensic history, injury assessment and management, photography, strangulation, long-term health effects, impact on children, and evaluation, discharge, danger assessment, safety planning and follow-up. Also covered is the legal and ethical aspects of caring for an individual that has experienced IPV including informed consent, confidentiality, reporting, and testifying.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 5803 Circuit Exploitation of Destructive Devices
Prerequisites: Permission of instructor and faculty advisor.
Description: This course focuses on providing students with an introduction and overview of electronic and electro-mechanical initiator circuits used in Improvised Explosive Devices (IEDs). Part 1 of a 2-semester sequence course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5813 Building Construction and Fire/Explosion Forensic Examination
Prerequisites: Permission of instructor and faculty advisor.
Description: Provides an introduction to building construction. It will focus on the importance of building construction as applied to fire and explosion investigations. Topics will include: structural mechanics, building construction concepts, properties of building materials, building and fire codes, fire and explosion behavior as it relates to building construction, fire protection features, various building types, as well as structural collapse and safety considerations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5823 Forensic Examination of Fire Protection Systems
Prerequisites: Permission of instructor and faculty advisor.
Description: Teaches the basic components and functions of building fire protection systems such as fire alarms and suppression systems. An emphasis will be placed on how these systems can impact the spread of a fire and how information from these systems can be used to assist with an origin and cause investigations. Common modes of system failures will also be covered. This is a self-paced three- (3) credit course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5833 Identification of Destructive Device Fuzing Systems
Prerequisites: Permission of instructor and faculty advisor.
Description: Expands students' knowledge of destructive device fuzing systems and forensic exams of these systems. Focuses on the mechanical, chemical, and electrical fuzing systems of the destructive devices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5853 Electrical Theory and Failure Analysis in Forensic Fire Investigations
Prerequisites: Permission of instructor and faculty advisor.
Description: Teaches basic electricity and basic electrical failure analysis familiarizing with how electricity, electrical appliances, and electrical devices can be potential ignition sources in a fire. Topics include electrical theory, electrical wiring techniques, circuit protection, appliance protection, identification of electrical melting on conductors, scene investigation methodology, current research topics, and NFPA 921 considerations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5873 Firearms and Toolmarks
Prerequisites: Permission of instructor and faculty advisor.
Description: This course overview includes general history, and how firearm and toolmark-related evidence is handled from crime scene to court. The primary concern is if two or more toolmarks share a common source. Toolmarks include fired ammunition components or other crime scene recovered items, e.g., IED components. Firearm examinations determine functionality, conversion and restoration of obliterated serial numbers or other manufacturer-related markings, and assist in shooting reconstruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5883 History of Firearm Identification
Description: History of Firearm Identification will guide students through the inception of the discipline through early examinations and developments, which led to the common practices of today. The class covers broad topics such as case studies, contributors, technologies, and methods and challenges students to evaluate how and why the discipline has changed since the 19th century. This course may be taken concurrently with or after Firearms & Toolmarks.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5893 Admissibility of Firearm Identification
Description: Forensic firearm and toolmark identification is an integral discipline for many private and governmental forensic laboratories. With many examinations resulting in court testimony, admissibility then is of vital importance and any examiner in the field must be able to sufficiently defend the science. This course will guide students through admissibility requirements as defined by federal and case law and provide material necessary to complete admissibility hearings in firearms identification.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5923 Intelligence Investigations for Forensic Genealogy
Description: This course explores the methods, practices, and ethical challenges involved in intelligence investigations within the field of forensic genealogy. Students will learn how to identify and track individuals through a range of modern investigative tools, including data brokers, genealogy websites, open-source intelligence (OSINT), and social media platforms. Emphasis will be placed on integrating genealogical records with digital intelligence sources, evaluating the reliability of data, and applying structured analytic techniques to genealogical investigations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5933 Introduction to Forensic Genealogy
Description: This course is designed to provide students with a foundational understanding of Forensic Genetic Genealogy (FGG). This three-credit course emphasizes the development of a theoretical framework by studying the history, methodologies, DNA interpretation, and strategies of the genealogical process. Students will explore how FGG is applied to resolving complex cases involving unidentified human remains, cold cases, and other forensic investigations. In this course, students will establish a groundwork for applying forensic genealogy in advanced coursework and casework.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5943 Forensic Management and Organizational Development
Description: Application of managerial and organizational leadership skills to the demands of forensic sciences, including attention to the human resource, relations and development issues. Inter-agency cooperation, quality control and assurance, certification and accreditation issues, and internal security.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5960 Forensic Problem Solving through Applied Research
Prerequisites: Permission from instructor and faculty advisor.
Description: Examines mixed research methodologies and designs applicable to the forensic sciences. The course launches work toward a thesis or creative component, including development of a purpose statement, research question and/or hypothesis as well as construction of an introduction and literature review. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5963 Forensic Statistics
Prerequisites: Permission of instructor and faculty advisor.
Description: Surveys statistical methodology relevant to forensic scientists. Provides a basic understanding of statistics presented in recent forensic literature. Hypothesis testing, ANOVA techniques, regression, categorical techniques. May not be used for degree credit with FRNS 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5970 Directed Readings in Forensic Sciences
Prerequisites: Permission of instructor and faculty advisor.
Description: Provides guided reading under direction and supervision of the instructor; in-depth, independent study on an identified topic relative to forensic sciences. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 5980 Non-Thesis Creative Component in Forensic Sciences
Prerequisites: Permission of instructor and faculty adviser; FRNS 5063 (concurrent enrollment allowed).
Description: Provides final-semester capstone experience for the non-thesis graduate student through independent research or projection management. Culminates with presentation of results in writing and in a public forum, which may be via electronic delivery or in person. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 5990 Special Topics in Forensic Sciences
Prerequisites: Permission of instructor and faculty adviser.
Description: Provides for exploration on special topics in the forensic sciences. Students gain an understanding at an advanced level of the particular topic presented. Offered for variable credit, 1-3 credit hours, maximum of 15 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6000 Doctoral Dissertation
Prerequisites: Consent of Doctoral faculty advisor.
Description: Doctoral research requirement culminating with a doctoral dissertation and PhD degree. Offered for variable credit, 1-15 credit hours, maximum of 45 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 6083 Advanced Forensic Statistics
Prerequisites: FRNS 5963.
Description: Analysis of variance, experimental designs pertaining to Forensic Science research, regression and data modeling, and categorical techniques. May not be used for degree credit with STAT 5083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6113 Advanced Energetic Materials Chemistry and Engineering
Prerequisites: FRNS 5113.
Description: An in-depth review of the chemistry of explosives, pyrotechnics and propellants. The course will cover molecular structure and engineering concerns in the production and utilization of these materials. Including: oxidation/reduction chemistry - Enthalpy, Entropy, and Gibbs Free Energy; structural effects on density, detonation velocity, sensitivity, and energy outputs; testing and interpretation of sensitivity and performance; molecular structure and optimization of physical characteristics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6123 Advanced Fire Dynamics
Prerequisites: FRNS 5123 and permission of instructor and Faculty Advisor.
Description: Advanced fire dynamics will reinforce and expand upon the fundamentals of fire dynamics learned in the prerequisite class. This course will cover advanced concepts in Fire Dynamics, including ventilation effects and application of fire dynamics principles to real-world fire investigations. Previously offered as FRNS 5163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6133 Advanced Forensic Genealogy
Prerequisites: FRNS 5933
Description: This course builds upon foundational genealogical skills and explores advanced strategies used in legal, forensic, and research contexts. Students will engage with case studies that highlight the use of autosomal, Y-DNA, and mtDNA testing; complex pedigree reconstruction; triangulation of matches; and record linkage across jurisdictions. By the end of the course, students will be equipped to apply genealogical methods to complex forensic problems and to collaborate effectively with law enforcement, legal professionals, and interdisciplinary research teams.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6143 Applications of Forensic Genealogy
Prerequisites: FRNS 5933
Description: This course is designed to explore the integration of genetic genealogy and forensic science in solving criminal, civil, and unidentified human remains cases. This three-credit course will equip students with theoretical frameworks, practical methodologies, and evidence-based strategies for applying genetic genealogy to forensic investigations. Students will examine the genealogical process, analyze case studies, and address ethical considerations in forensic genealogy casework.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6163 Blast Modeling
Description: Provides an overview of blast phenomenology and practical methods for modeling the blast environment and the response of structures, equipment, and personnel. Students will gain an understanding of the assumptions, limitations, and errors associated with different modeling approaches to understand and correctly interpret results and know when higher fidelity modeling approaches may be necessary.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6173 Advanced Interdisciplinary Post Blast Investigation
Prerequisites: FRNS 5443.
Description: Demonstrates a systematic method of investigating an explosion scene. Provides instruction in explosives identification, applications, effects, fragmentation analysis, IED component recognition and evidence collection, including DNA. Previously offered as FRNS 5173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6183 Advanced Computer Fire Modeling
Prerequisites: Permission of instructor and faculty advisor; FRNS 5183 Basic Computer Fire Modeling.
Description: Focuses on the creation and usage of fire models to assist with fire investigations. Topics include advanced meshing techniques; modeling of wind and other ventilation sources; using model output to diagnose problem areas; how to conduct sensitivity analysis of computer fire model results and discussion of use of fire models in the support of investigations and trials. Previously offered as FRNS 5193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6243 Historical Evolution of Forensic Genetics
Prerequisites: Graduate standing.
Description: Intended to trace the evolutionary progression of the field of Forensic Biology and Genetics from its origins in the 1970s with the use of serological methods to current day DNA testing routinely used worldwide for the investigation of crime and in cases of questioned family relatedness.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6263 Threat Assessment and Management of Violent Extremism
Prerequisites: FRNS 5273.
Description: This course will introduce the ideologies, patterns, and actions associated with violent extremism and the threats posed by such. Will Include a focus on the ideologies within domestic extremism Including understanding the motivations of violent extremists. This course will cover key theories explaining extremist radicalization, recruitment, engagement, and mobilization In the US. We will examine the current groups as well as emerging threats affecting US interests domestically and abroad.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6273 Threat Assessment and Management of Workplace Violence
Prerequisites: FRNS 5273.
Description: Threat Assessment and Management of Workplace Violence will cover the concepts of individuals that seek to or do harm to coworkers from a threat assessment standpoint. Students will learn about the different types of workplace violence. Students will understand violence in certain occupations including post offices and healthcare.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6283 Threat Assessment and Management of Violence in Schools
Prerequisites: FRNS 5273.
Description: Threat Assessment and Management of Violence in Schools explores individual threats in the K-12 system. Students will understand the basics of threat assessment and management as it applies to schools, Including information gathering and working in teams on specific protocols. Students will explore the legal and ethical dilemmas posed in this unique setting. Finally, students will review the case study of a school shooter, T.J. Lane.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6293 Threat Assessment and Management of Stalking
Prerequisites: FRNS 5273.
Description: Threat Assess. and Mgmt. of Stalking delves into the phenomenon of repeated harassment with the intent of causing fear in others. An in-depth look at the psychology of stalking, from motives, typologies, and attachment theory. The course covers the laws regarding stalking along with police response, and an evaluation of protective orders. There will be an analysis of the role of cyber technology and social media and stalking. These concepts will be applied to the stalking case, John Hlnkley Jr.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6400 Case Studies in Forensic Science
Description: This course provides interested students with in-depth analysis Into different case studies In the field of forensic science. As each case Is discussed, emphasis will be placed on behavioral characteristics, investigation, and outcomes. As the course concludes, the final lecture reviews themes, lessons, and consequences learned. Topics explored In this series will be serial killers, mass shooters, violent extremism, etc. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6423 Advanced Blast Injuries and Effects
Prerequisites: FRNS 5423 or permission of instructor and faculty advisor.
Description: This course is a comprehensive view into nuances of explosive effects on the human body, building on FRNS 5423. Fifth order effects/Quinary effects of blast injury will be scrutinized. Focus on Quinary effects, the contamination and after affects, including but not limited to: radiological, chemical, and biological effects from explosives. Course provides students opportunity to research focus area of interest related to casualties of explosive events. Previously offered as FRNS 5433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6513 Advanced Methods in Forensic Genetics
Prerequisites: Graduate standing.
Description: This course is designed to develop a deep theoretical understanding as well as practical laboratory skills in sophisticated methods for the molecular analysis of DNA and RNA that may exist as biological evidence recovered from a crime scene.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Forensic Sciences

FRNS 6663 Network Forensics
Prerequisites: Digital and Multimedia Evidence for Investigators FRNS 5683.
Description: The student will develop a foundational understanding of recovering Information from a compromised networked environment that may Identify an intrusion perpetrator. As a result of the discussions, readings, lectures, and labs conducted during the class, the student is expected to understand and demonstrate processes used in network forensics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6673 Mobile Device Forensics
Prerequisites: Digital arid Multimedia Evidence for Investigators (FRNS 5683).
Description: The student will develop the skills to extract and analyze information stored on mobile devices, to Include cellular phones, loT devices and drones. As a result of the discussions, readings, lectures, and labs conducted during the class, tho student is expected to understand and demonstrate the processes used in mobile forensics that relay information about the user of the device to include communication, location, and intent.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6683 Computer Forensics, Extractions and Analysis
Prerequisites: FRNS 5683.
Description: As a cornerstone of the Digital and Multimedia Evidence discipline, computer forensics Is the application of tested and validated processes used to recover and investigate data extracted from computers. This class will focus on the extraction and analysis of user data and how those 'traces" can inform an Investigation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6703 Advanced Forensic Intelligence Analysis
Prerequisites: FRNS 5673
Description: This course is designed to equip students with the analytical, methodological, and technological skills required to conduct intelligence operations in forensic contexts. This course emphasizes advanced techniques for data collection, integration, and interpretation from multiple sources—including digital, biometric, geospatial, genealogical, and open-source platforms. Emphasis is placed on bridging the gap between intelligence production and decision-making in law enforcement, national security, and forensic investigations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6713 Applied Forensic Theory
Prerequisites: Graduate standing.
Description: Cover the basics of popular criminological, criminalistics, and criminal justice theories used in social, behavioral and forensic science research. Theories provide explanations for why individual engage and desist from crime and delinquency. These theories provide perspectives on the criminal justice system, the law, punishment, and the relation to criminal and civil law.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6723 Research Design and Methods
Prerequisites: Graduate standing.
Description: This course covers fundamental methodologies associated with quantitative, qualitative, and mixed-methods research designs. Students will learn basic skills related to conducting scholarly literature searches, developing research questions, and determining appropriate sampling techniques. Throughout the course, students will develop their own research project, refine academic writing skills, and become more informed consumers of empirical research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6733 Juvenile Issues in Forensic Sciences
Prerequisites: Graduate standing.
Description: Focuses on the nature and extent of delinquency, the causes of delinquency, patterns of delinquency, and reactions to delinquency. Covers the scientific approach to understanding delinquency, the law and both the civil and criminal juvenile justices systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6743 Doctoral Forensic Science Theory
Prerequisites: Graduate standing. Admission to Doctor of Forensic Sciences degree.
Description: Entry-level theory course for all subspecialty tracks in forensic sciences. Builds upon prior coursework/professional experience to prepare returning student for an area of doctoral specialization and provide a clinical/theoretical background aligning with current trends within the field of Forensic Sciences.
Credit hours: 3
Contact hours: Contact: 3 Other. 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 6753 Doctoral Forensic Science Applications
Prerequisites: Graduate standing. Admission to Doctor of Forensic Sciences degree.
Description: Entry-level applications course for all subspecialty tracks in forensic sciences. Builds upon prior coursework/professional experience to prepare returning student for an area of doctoral specialization and provide a clinical/theoretical background aligning with current trends within the field of Forensic Sciences.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 6800 Critical Readings in Forensic Sciences
Prerequisites: Consent of faculty advisor.
Description: Provides experience with the primary literature in forensic sciences, with training in evaluation methodologies, experimental design, data presentation, and statistical designs. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 6833 Advanced Identification of Destructive Device Fuzing Systems
Prerequisites: FRNS 5833 and permission of instructor.
Description: The purpose of this course is to expand students' knowledge of destructive device fuzing systems using inexpensive commercial off-the-shelf microcontroller-enabled hobbyist boards and sensor modules, course material focuses on developing and understanding of how microcontroller-enabled hobbyist boards and inexpensive sensor modules can be used to function improvised explosive and incendiary devices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6843 Advanced Destructive Device Circuit Exploitation
Prerequisites: Permission of instructor and faculty advisor; FRNS 5803 Circuit Exploitation of Destructive Devices.
Description: Examines electro-mechanical IED designs that are found on the open-source Internet. Examines electro-mechanical initiator circuitry from the perspective of forensics. Examines initiator circuit families such as: Timers, Pressure Sensitive, Radio Controlled, etc. Previously offered as FRNS 5843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6853 Advanced Electrical Theory and Failure Analysis in Forensic Fire Investigations
Prerequisites: Permission of instructor and faculty advisor; FRNS 5853 Basic Electrical Theory and Failure in Forensic Fire Investigations.
Description: Provides the student with a more advanced understanding of electricity, energy, and power. Allows the ability to comprehend electrical failures and explain them to a jury. Previously offered as FRNS 5863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6903 Advanced Forensic Examination of Firearms
Prerequisites: FRNS 5873.
Description: Advanced Firearm Identification deals with advanced aspects of the forensic science discipline of firearm identification. This course builds on the introductory course Overview of Firearm and Toolmark Identification by going into detail with respect to firearm-related evidence and how it is examined and compared by a firearm examiner in a forensic laboratory. The course will discuss firearm-related evidence from the crime scene to the courtroom - its recovery, examination, comparison and investigative value.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6913 Advanced Toolmark Examination and Identification
Prerequisites: FRNS 5873.
Description: This course will detail the various concepts and issues with which the forensic toolmark examiner must be concerned to include tool manufacture, toolmarks at the crime scene, basic mircoscopy for the examiner, laboratory examination of toolmarks, interpretation and evaluation of toolmark examinations, manufacturing marks, physical matching, report writing, and presentation in court.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6923 RCIED - Advanced Analysis and Mitigation
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6933 Shooting Reconstruction for Examiners
Prerequisites: FRNS 5873.
Description: This course will introduce students to the basic tools and tests used to reconstruct shooting scenes. Basic trajectory analysis, test for bullet defects, ricochets and Firearms Operability are some of the topics that will be introduced. Upon completion of this course students will have a basic knowledge of how to properly document and reconstruct shooting scenes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Forensic Sciences

FRNS 6970 Advanced Directed Readings in Forensic Sciences
Description: Through independent study students will broaden their perspective and understanding of a wide range of forensic sciences disciplines and professions to discover opportunities for continued learning, development and research. Students will utilize this course to explore forensic topics and literature leading towards a unique academic goal, publication or capstone project.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 6980 Doctoral Capstone Experience in Forensic Sciences
Prerequisites: Consent of faculty advisor.
Description: Provides capstone experience for the non-dissertation doctoral student through independent research or projection management. Culminates with presentation of results in writing and in a presentation, which may be via electronic delivery or in person.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

FRNS 6990 Advanced Special Topics in Forensic Sciences
Prerequisites: Consent of faculty advisor.
Description: Tutorials in areas of forensic sciences not addressed in other courses. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Forensic Sciences

Foundations of Education and Psychology (FDEP)

FDEP 5183 Theories of Social Psychology
Prerequisites: Permission of instructor.
Description: History, theories, and empirical findings regarding the interactions between individual and group functioning. Previously offered as EPSY 5183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

FDEP 5493 Psychology of Learning and Behavior
Description: An introduction to the psychology of learning and behavior. Examination of the principles of Classical and Operant conditioning and integration of these and other learning theories into applied settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

FDEP 6123 Biological Bases of Behavior
Description: A study of the physiological basis for behavior. A survey of neurophysiology with emphasis placed upon sensory and motor processes, and the effect which emotion and motivation have upon the organization of behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

FDEP 6133 History and Systems of Psychology
Description: History and systems of psychology related to contemporary applied psychology. Previously offered as EPSY 6133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

French (FREN)

FREN 1713 Elementary French I (F)
Description: Main elements of grammar and pronunciation, with work on the four basic skills of listening comprehension, speaking, reading and writing. Not for native speakers per University Academic Regulation 4.9. Previously offered as FREN 1115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 1813 Elementary French II (F)
Prerequisites: FREN 1713 or equivalent proficiency.
Description: Continuation of FREN 1713. Not for native speakers per University Academic Regulation 4.9. Previously offered as FREN 1225.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 2713 Intermediate French (FG)
Prerequisites: FREN 1813 or equivalent proficiency.
Description: Further development of speaking, listening, reading, and writing skills along with short cultural and literary readings. Not for native speakers per University Academic Regulation 4.9. Previously offered as FREN 2112.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: International Dimension

FREN 2723 Intermediate Grammar and Composition I
Prerequisites: FREN 1813 or equivalent proficiency.
Description: Review and further presentation of grammar and pronunciation; consolidation of basic skills, with additional emphasis on writing. May be taken concurrently with other 2000-level French courses. Not for native speakers per University Academic Regulation 4.9. Previously offered as FREN 2113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 2813 Intermediate Reading and Conversation
Prerequisites: FREN 2713 or equivalent proficiency.
Description: Reading and discussion of more advanced French texts, mostly literary. May be taken concurrently with other 2000-level French courses. Not for native speakers per University Academic Regulation 4.9. Previously offered as FREN 2232.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 2823 Intermediate Grammar and Composition
Prerequisites: FREN 2713 or equivalent proficiency.
Description: Review and further presentation of grammar and pronunciation; consolidation of basic skills, with additional emphasis on writing. May be taken concurrently with other 2000-level French courses. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 3073 French Conversation
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Colloquial speech, with discussion of French newspapers and magazines. Practice in brief public address in French.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 3203 Advanced Written Expression
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Practice in composition and stylistics, designed to bring students up to a high level of proficiency in writing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 3213 Advanced Grammar
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Conceptual framework and presentation of the finer points of French grammar.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 3343 Business French
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Applied French for students in commercial and technical fields. Overview and strategies of business and economic climate in France.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 3463 Advanced Diction and Phonetics
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Required course for teacher certification. French speech sounds and intonation patterns, with practice to improve the student's pronunciation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 3853 Introduction to Analysis of French Literature
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Close reading of shorter texts in a variety of literary genres, with presentation of French versification and literary terminology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 4153 Survey of French Literature I
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Historical survey of French literature before 1800, with reading of representative texts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 4173 Survey of French Literature II
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Historical survey of French literature since 1800, with reading of representative texts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 4333 Background of Modern French Civilization
Prerequisites: 18 hours of French or equivalent proficiency.
Description: General overview of French history, geography, and culture, with emphasis on art, music, and intellectual movements. Capstone course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 4550 Directed Studies in French
Prerequisites: 18 credit hours of French or equivalent proficiency.
Description: Individual or group study of French language or literature. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

FREN 4573 Modern French Theater
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Analysis of French plays from the 19th and 20th centuries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 4583 French Cinema
Prerequisites: 18 hours of French or equivalent proficiency.
Description: Introduction to cinematic analysis through a survey of French movie classics from the 1890s to the present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

FREN 5110 Advanced Studies in French
Prerequisites: 15 credit hours of upper-division French.
Description: Discussion or research in specialized topics. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Languages and Literatures

Gender and Women's Studies (GWST)

GWST 2113 Transnational Women's Studies (S)
Description: Introduction to research on women and gender in transnational contexts. Interpersonal relationships, socioeconomic status, power and authority as women experience them, myths and realities among women of different races, classes, ethnicities, sexual orientation, nationalities, ages, and physical ability. Previously offered as WMST 2113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Society & Human Behavior

GWST 2123 Introduction to Gender Studies (DH)
Description: Introduction to critical thinking about the construction of gender and the intersections of gender with race, ethnicity, class, and sexuality. Basic methods of studying gender from an interdisciplinary humanities perspective. Previously offered as WMST 2123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

GWST 3443 Gender Relations in Chinese History (H)
Description: This course examines men's and women's social, cultural, religious, political, economic, family, and sexual experiences in Chinese hist; particularly women's own voices and efforts in pursuing their own goals and aspirations. Same course as HIST 3443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

GWST 3450 Topics in Gender Studies
Prerequisites: GWST 2113 or GWST 2123 or permission of instructor.
Description: Suggested topics include: women and health, women and science, women and religion. Previously offered as WMST 3450. Offered for fixed credit, 3 credit hours, maximum of 12 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

GWST 3513 Theorizing Sexualities (D)
Prerequisites: GWST 2113 or GWST 2123.
Description: Examination of poststructuralist and/or feminist theories of sexualities in contexts of film, literature, history, or popular culture. Likely theorists include Foucault, Butler, D'Emilio, Lorde, Kristeva, Anzaldua, Chow, and/or Chauncey. Previously offered as WMST 3513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity

GWST 3523 Gender and Religion Across Cultures (H)
Description: This course explores the interconnectedness of gender, religion, and culture both locally and globally. We will critically analyze how religious ideas, events, texts and traditions inform individual identities, gender discourse, gender roles, as well as issues of power, privilege and oppression within different religious communities around the world. Same course as REL 3523 and GEOG 3523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

GWST 3553 LGBTQ Lives in the United States (D)
Description: Introduction to the Study of lesbian, gay, bisexual, transgender, intersex, and queer+ (LGBTQ) experiences, representations, cultural practices, and resistance to oppression in the contemporary United States.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity

GWST 3613 Race and Reproduction in the U.S. (D)
Prerequisites: GWST 2113 or GWST 2123 recommended.
Description: An interdisciplinary examination of the inextricable relationship between race relations and reproductive politics. Issues explored include malthusianism, sterilization abuse, criminalizing pregnancy, natalism and nationalism, eugenics, the role of women of color in campaigns for reproductive justice, and representations of motherhood.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity

GWST 3713 Gender and Representation (D)
Description: Cultural analysis of gender representation and gender relations. Using cultural texts and practices in several areas such as children's culture, sport, music, film and TV. Previously offered as WMST 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity

GWST 3813 Mothering
Description: This course offers an interdisciplinary study of motherhood and mothering, exploring its social and cultural contours, diverse representations, and varied practices from GWST, feminist, intersectional, and LGBTQ perspectives.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

GWST 3913 Gender, Violence & Justice (D)
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity

GWST 4013 Approaches to Feminist Research
Prerequisites: GWST 2113 or GWST 2123 or consent of instructor.
Description: Examines the ethics and epistemologies of methodologies and theoretical frameworks most conducive to feminist analysis. This course prepares students to conceptualize their own research projects. Previously offered as WMST 4013. May not be used for degree credit with GWST 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

GWST 4113 Feminist Theories
Prerequisites: GWST 2113 or GWST 2123 or consent of instructor.
Description: Examines the different types of feminist theories and the role theory plays in the production of knowledge. A variety of feminist theories will be considered from an interdisciplinary perspective. Previously offered as WMST 4113. May not be used for degree credit with GWST 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

GWST 4333 History of Sexuality in the United States (D)
Description: This course examines the history of sexuality in the U.S. from the 16th century to the present. It considers how social, cultural, political, and economic conditions have affected changing meanings of sexuality over time. It takes an intersectional approach, paying particular attention to how issues of race, class, and gender have shaped attitudes towards and experiences of sexuality in the American past. Same course as HIST 4333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Diversity

GWST 4413 Sex & Gender in the Medieval World
Description: Historical attitudes toward sex and gender history in medieval Europe. Interdisciplinary approach also including cultural, social, economic and religious history. Same course as HIST 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

GWST 4503 Theorizing Men and Masculinities
Prerequisites: GWST 4113 or permission of instructor.
Description: Examines the roles of men in various cultural contexts, the historical development of manhood as an ideal, and theories of masculinities. May not be used for degree credit with GWST 5503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

GWST 4613 Women in the Bible (H)
Description: This course will examine the stories about and portrayals of women in the Bible. We will explore what the biblical authors have to say about women within their cultural contexts and how these portrayals have shaped how women are seen in Western society. By analyzing the portrayals of women in antiquity, the course will also provide conceptual tools to help students examine how gender has been understood in Western society. Same course as REL 4613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English
General Education and other Course Attributes: Human Heritage & Cultures

GWST 4890 Internship in Gender and Women's Studies
Prerequisites: Consent of instructor.
Description: Directed practicum or internship experience in a GWST related professional work setting. Students must have an approved internship that will provide gender and women's studies experience beyond that available in the classroom. Students produce written analyses of their work and learning under the guidance of the instructor and internship site supervisor. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: English

GWST 4950 Special Topics in Global Feminism
Prerequisites: GWST 2113 or GWST 2123 or permission of instructor.
Description: Selected topics in the problems and issues of global women's and feminist activism. Highlights the continuing fight to secure gender equality, especially in developing nations. Exploration of the women's movement links with other human rights struggles across the globe. Previously offered as WMST 4950. May not be used for degree credit with GWST 5950. Offered for 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

GWST 4990 Directed Readings in Gender Studies
Prerequisites: Permission of instructor.
Description: Examines gender studies issues and topics. Previously offered as WMST 4990. May not be used for degree credit with GWST 5990. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: English

GWST 5013 Approaches to Feminist Research
Description: Examines the epistemologies, theoretical frameworks, and ethics of methodologies conducive to feminist analysis. This course prepares students to conceptualize and undertake their own research projects. May not be used for degree credit with GWST 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

GWST 5103 Gender and Sexuality
Description: This course offers an interdisciplinary survey of major works and key concepts in the field of Gender and Women's Studies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

GWST 5113 Feminist Theory
Description: Examines diverse feminist theories and their role in the production of knowledge. A variety of contemporary feminist theories will be considered from an interdisciplinary perspective. May not be used for degree credit with GWST 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

GWST 5300 Seminar in Gender and Women's Studies
Description: This course will offer a topics-based graduate colloquium in the interdisciplinary and international field of Gender and Women's Studies. Potential topics include Gender and Modern War, Feminist Aesthetics, Sexuality and Space, Cold War Masculinities, and Gender and International Relations. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: English

GWST 5503 Theorizing Men and Masculinities
Prerequisites: GWST 4113 or permission of instructor.
Description: Examines the roles of men in various cultural contexts, the historical development of manhood as an ideal, and theories of masculinities. May not be used for degree credit with GWST 4503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

GWST 5913 Gender, Violence and Justice
Description: This course provides a transnational, intersectional examination of gender-based violence and varied forms of justice. Issues explored might include violence against women, domestic violence, human trafficking, sexual harassment, policing, incarceration, as well as anti-violence activism and alternatives to criminal legal system. May not be used for degree credit with GWST 3913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

GWST 5950 Special Topics in Global Feminism
Prerequisites: GWST 2113 or GWST 2123 or permission of instructor.
Description: Selected topics in the problems and issues of global women's and feminist activism. Highlights the continuing fight to secure gender equality, especially in developing nations. Exploration of the women's movement links with other human rights struggles across the globe. May not be used for degree credit with GWST 4950. Offered for 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: English

GWST 5990 Directed Readings in Gender and Women's Studies
Prerequisites: Permission of instructor.
Description: Specialized readings or independent study in GWST. May not be used for degree credit with GWST 4990. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: English

General Engineering (GENG)

GENG 4010 Senior Design Project
Prerequisites: Senior standing in general engineering.
Description: Capstone design project through independent application of engineering principles and concepts from the disciplines covered in earlier course work. Offered for variable credit, 2-4 credit hours, maximum of 4 credit hours.
Credit hours: 2-4
Contact hours: Contact: 2-4 Other: 2-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Engineering Technology

General Technology (GENT)

GENT 2323 Statics
Prerequisites: MATH 2123 or 2144 and PHYS 1114 or PHYS 2014.
Description: Forces acting on bodies at rest; forces, moments of force, distributed forces, reactions, free-body diagrams, friction, internal forces and moments of inertia. Applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Engineering Technology

GENT 2650 Technical Projects
Prerequisites: Completion of three semesters' work in a technical institute curriculum.
Description: Special projects assigned by advisers with the approval of the director. A comprehensive written report must be prepared and an oral examination may also be required. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Engineering Technology

GENT 3323 Strength of Materials
Prerequisites: MATH 2123 or MATH 2144 with grade of "C" or better in GENT 2323 or ENSC 2113.
Description: Stress and strain and their relation to loads. Axial, torsional and bending loads, beam deflection, columns and combined stresses. Applications emphasized. Course previously offered as MCDT 3323 and MET 3323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Engineering Technology

GENT 5113 Intelligent Mechatronics Systems and Robotics
Prerequisites: GENT 3123 or equivalent.
Description: Modelling of mechanical, electrical, and hydraulic components and robotic manipulators. Control systems design, electro-hydraulic drives, electrical drives, robotic manipulator and intelligent control design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Engineering Technology

Geography (GEOG)

GEOG 1022 Climate Change and Humanity (N)
Description: Focus on the development of scientific inquiry and critical thinking skills needed to evaluate complex relationships among climate, energy production, and the environment. Students will explore causes and consequences of climate change and consider climate change science from alternative perspectives. Same course as GEOL 1022.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Natural Science Reasoning

GEOG 1113 Introduction to Cultural Geography (GS)
Description: Surveys the principles of human geography by exploring the world's diverse patterns of culture and associated cultural landscapes. Examination of global patterns of population; language; religion; ethnic, national, and sexual identities; the development of regions, cities, and industry; food production and environmental change, especially as they are affected by globalization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 1114 Introduction to Physical Geography (LN)
Description: Study of the atmosphere, hydrosphere, lithosphere, and biosphere-the major realms that interact to create Earth's environmental patterns. Human-environmental interactions are emphasized as the environment affecting people and people affecting the environment. The lab rounds out knowledge in course themes through hands on study of maps, GPS, and environmental processes.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning
Additional Fees: GEOG 1114 Field Trip fee of $50 applies.

GEOG 1713 Regions & Nations in Global Context (GS)
Description: A regional approach to the study of human societies and the makeup of nations around the world, with an emphasis on contemporary issues such as climate change, sustainability and other environmental impacts; population and immigration; cultural, religion and language; and economic characteristics such as wealth disparities, poverty and education. This course covers many distinct world regions in each region such as Europe, Latin America, the Middle East and Southeast Asia. Previously offered as GEOG 2253. Same course as GLST 1713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 2002 Global Sustainability (N)
Description: This course examines questions of sustainability and sustainable development in a global context from environmental, social, and economic perspectives. Emphasis is placed on how different dimensions of sustainability interact, and how those interactions are shaped by regional context in a globalized world. Through discussion of policy and current environmental issues around the world, students will learn to analyze relationships and tradeoffs between humans and their environment. Same course as GLST 2002.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Natural Science Reasoning

GEOG 2103 Global Perspectives (GS)
Description: Introduces students to the cultural, economic, and political aspects of globalization and global issues. Emphasizes the relationship between tradition and change, the interconnectedness of people, places, and institutions, aspects of social and economic development, and the evolving role of technology in creating and sustaining a globalized world. Also introduces students to possible career options. Same course as GLST 2103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 2344 Digital Tools for Environmental Problem-Solving (LN)
Description: This course provides an introduction to some cool tools for environmental problem-solving. These tools mainly include the Global Positioning System (GPS), geographic information systems (GIS), and remote sensing, also referred to as geospatial technologies. With a combination of lectures and hands-on exercises, students will become familiar with the fundamentals of these cool tools, and their applications in the environment such as in public health, climate change, water resource, food security, disaster assessment and recovery, deforestation.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

GEOG 2890 Honors Experience in Geography
Prerequisites: Honors Program participation and concurrent enrollment in a designated GEOG course.
Description: A supplemental Honors experience in Geography to partner concurrently with designated Geography courses (GEOG 1113, 1114, and 1713). This course adds a different intellectual dimension to the designated courses. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Honors Credit

GEOG 3023 Climatology (N)
Description: A non-quantitative introduction to characteristics and distributions of long-term patterns in the atmosphere. Patterns and associations of temperature, precipitation, pressure and winds. Physical processes, regional climates of Earth, climate change, and applications of climate to agriculture, industry, and other human activities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Natural Science Reasoning

GEOG 3033 Meteorology (N)
Description: A non-quantitative introduction to weather. Physical elements that cause and influence the atmosphere over the short term. Energy, moisture, and storms. Interpretation of weather maps and satellite imagery.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Natural Science Reasoning

GEOG 3053 Introduction to Central Asia Studies
Description: A comprehensive view of newly-emerged Central Asian states, examining the history, politics, economics, geography, and culture of Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan as reflected in their thoughts, religion, literature, and architecture in the past, and the strategic importance of their natural wealth for the present and future. Same course as GLST 3053, HIST 3053, POLS 3053 & RUSS 3053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Society & Human Behavior

GEOG 3063 Economic Meteorology
Description: Economic impact of weather ranging from consumer spending to agriculture and energy commodity markets. Specific weather events, and their associated economic impact, weather and climate forecasting and methods for eliminating weather risk.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 3093 Historical Geography of North America to 1800 (H)
Description: This course is an examination of the cultural geography of colonial North America from the earliest European contact with Native Americans to the end of the 18th Century. The course examines regional patterns of indigenous American Indian settlement, European exploration, trade, colonization. Immigration, impacts upon indigenous societies, and the development of preindustrial economic regions. Students will gain an appreciation of the interactions of various indigenous, European, and African peoples in different environments in the colonial era. Same course as HIST 3093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Human Heritage & Cultures

GEOG 3113 Global Water Resources: Sustainability & Justice (GS)
Description: Water resources are key to the success of societies in all of their various forms. This course introduces students to fundamental concepts of water resources, including the natural processes of the hydrological cycle, management of water resources, and societal threats to sustaining water quantity and quality. Students in this course will develop an awareness and appreciation of the multiple perspectives about water as a precious resource, commodity, and point of justice. Same course as GLST 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 3123 Urban Geography (S)
Description: This course seeks to explain the evolving pattern of North American cities and their antecedents in terms of the distribution and movement of people and resources as well as the effects of changes in transportation and communication technology. In addition, a careful analysis of the development and internal spatial structure of North American cities will be carried out. Much class time will be spent on discussion of contemporary urban problems such as segregation, unequal investment, and control of urban public space as well as attempts at their solution.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Society & Human Behavior

GEOG 3133 Political Geography (GS)
Description: Political structures, relationships and geopolitical implications of location, boundaries, culture and the natural environment of nations and states. Global patterns of political behavior, political history, international law and geostrategy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 3153 Conservation of Natural Resources (S)
Description: A focus on the stewardship and sustainable management of our natural resources. Problems and corrective methods in the conservation of land, water, forests, wildlife, and mineral resources. Key themes include the relationships between human and environmental systems, degraded landscape restoration, environmental policy and compliance, and economic implications of natural resource management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Society & Human Behavior

GEOG 3163 Economic Geography (S)
Description: Processes significant to the spatial structure of economic systems. Production, consumption and exchange activities examined in regard to location, distribution, aerial differentiation and spatial interaction patterns. Attention given to processes of change as well as to steady states.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Society & Human Behavior

GEOG 3173 Cultural Geography (S)
Description: Geographic impact of human cultures. Emphasis on the concepts of social space, density, crowding, territoriality, diffusion, migration, environmental perception and cultural landscape.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Society & Human Behavior

GEOG 3183 Transportation Geography
Description: Basic concepts and theories of transportation geography, selected transportation models and analysis methods related to spatial interactions, network analysis, allocation, and urban transportation planning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 3203 Contemporary Issues in Geotechnology
Description: A look at critical issues currently facing the geography and geotech communities. Topics will include data sources, privacy, surveillance, internet censorship, big data, and the spaces and politics of code to discuss the impacts of technology on society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 3213 Digital Worlds: Culture, Identity, and Community (H)
Description: An introduction to the geographies of communication and media in the context of recent technological changes. Students will learn how online and offline spaces are created and interact as a result of social media and telecommunications technology. Topics include: geographies of the internet, the digital divide, media culture, video game spaces, and online politics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Human Heritage & Cultures

GEOG 3243 Legal Geography of Native America, Sovereign Tribal Nations, and Indian Country (DS)
Description: Geographical perspective on the evolution of U.S. federal Indian law and policy through an examination of case and statute law. Examination of tribal sovereignty and jurisdiction over lands in aboriginal title and federal trust, and how land defines indigenous identities and affects tribal-state relations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Diversity, Society & Human Behavior

GEOG 3333 Spatial Analysis (Q)
Prerequisites: STAT 2013 or STAT 2023 or STAT 2053 or STAT 4013 or STAT 4053.
Description: An introductory course in the application of basic statistical methods to spatial problems, including descriptive statistics, probability distributions, point and interval estimation, hypothesis testing, correlation, and simple linear regression. Emphasizes the challenges of working with spatial datasets and choosing appropriate methods of analysis, as well as explicitly spatial methods such as spatial sampling, point and area pattern analysis, and spatial autocorrelation. Provides a foundation for further study in geospatial technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Analytical & Quant Thought

GEOG 3373 Health and Maps
Description: How does where people live affect their health? How does the infectious disease spread across places? Health geography provides unique and powerful insights for understanding connections between wellness and place. This course will introduce basic concepts and tools of maps, Geographic Information Systems (GIS), and map analysis. It will also demonstrate their application in the context of public health, including infectious disease, environmental health, urban health, health resource accessibility, and more.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 3523 Gender and Religion Across Cultures (H)
Description: This course explores the interconnectedness of gender, religion, and culture both locally and globally. We will critically analyze how religious ideas, events, texts and traditions inform individual identities, gender discourse, gender roles, as well as issues of power, privilege and oppression within different religious communities around the world. Same course as GWST 3523 and REL 3523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Human Heritage & Cultures

GEOG 3703 Geography Of Oklahoma (S)
Description: Introduction to geography's regional approach through an examination of the cultural and environmental patterns of the State of Oklahoma. Systematic examination of physical regions, natural vegetation, wildlife and resource bases. Exploration of diverse Native American communities as well as European ethnic and African American settlement. Focus on evolving agricultural regions and the mineral industries and population dynamics in both rural and urban areas. Emphasis on cultural landscapes and representation of Oklahoma in popular culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Society & Human Behavior

GEOG 3713 Exploring North America and Diversity (DS)
Description: This course presents a regional analysis of the United States and Canada, including physical and cultural landscapes, population and migration trends, regional development, natural resources, and U.S.-Canada relations as well as global relations. In addition, it emphasizes diversity in both countries, with special attention to those geographies of under-represented and minority groups in the U.S. May not be used for degree credit with GLST 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Diversity, Society & Human Behavior

GEOG 3723 Europe (GS)
Description: This course examines the cultural, economic, and natural diversity of Europe in relation to globalization, climate change, and popular culture. Basic geographic concepts such as migration, region, and culture will be linked to European current events. Students will learn to properly utilize online sources to understand current European issues and their relationship to other countries and regions around the world. May not be used for degree credit with GLST 3723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 3733 Russia and Its Neighbors (GS)
Description: A regional survey course of Eurasia extending from Central Europe to Western Siberia. Central and Southwest Asia will not be considered in this course. Thematic contemporary issues in the region will be covered, including topics on culture, politics, social issues, economic development, and others. May not be used for degree credit with GLST 3733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 3743 Latin America (GS)
Description: A regional analysis of physical, cultural and economic features of historic and contemporary Latin America. Key themes include people and environment, development and change, government and conflict, and globalization and social change. Same course as GLST 3743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 3753 Asia (GS)
Description: A regional survey course of Asia from Pakistan in the west to the Asian littoral in the east, including Japan, Taiwan, and the Philippines. Central and Southwest Asia will not be considered in this course. Regionally, Asia will be approached through examination of two great cultural focal points: India and China. Thematic contemporary issues in Asia will be covered, including topics on culture, politics, social issues, economic development, and others. Same course as GLST 3753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 3763 Africa (GS)
Description: An exploration of the patterns and impact of population, cultural heritage, and natural resources to build an understanding and experience with Africa. Historic and contemporary relationships between Africa and Western civilization. Key themes include traditions and lifeways, development and change, government and conflict, and people and environment. Same course as GLST 3763.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 3783 The Middle East (GS)
Description: A regional analysis of the Arab, Persian and Turkic lands that builds an understanding and experience with the Middle East. Historic and contemporary patterns highlight both tradition and modernity. Key themes include lifeways and social change, development and globalization, international relations and conflict, and natural resources and environment. Same course as GLST 3783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 3793 Australia and the Pacific Realm (GS)
Description: Study of Australia, New Zealand, and the island regions of Micronesia, Melanesia, and Polynesia. Course examines the cultural and natural diversity of these regions in relation to globalization, climate change, and popular culture. Course covers enduring cultural traditions, legacies of external involvement, changing livelihoods and landscapes, and the region's role in global affairs. Same course as GLST 3793.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GEOG 3910 Applied Geographical Topics
Description: Specialized physical, human, regional, or technical issues and trends in geography. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 3990 Geography Teaching Practicum
Prerequisites: Consent of instructor.
Description: For outstanding students. Students will work with a faculty instructor and assist in many aspects of teaching including guest lecturing, offering study sessions, office hours, among other duties as determined by instructor. May involve meetings and written papers. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geography

GEOG 4003 Natural Hazards and Society
Description: Explores natural hazards and how humans respond and contribute to these hazards and how humans respond and contribute to these hazards and disasters such as earthquakes, extreme weather events and volcanic eruptions. The course will also examine how hazards impact society, how society deals with disasters, and how we can mitigate the effects of such events.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4023 Arid Lands and Drought (N)
Description: The course explores the world of deserts and semideserts, which together cover almost a half of the Earth's land surface, and almost a third of North America's, as well as areas threatened by drought. The course focuses on the nature of dryland environments and the challenges faced by human communities living in such environments, as well as the mechanisms of drought and desertification. No credit for students with degree credit in GEOG 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Natural Science Reasoning

GEOG 4053 Biogeography, Biodiversity, and Humankind
Description: Biogeography is the study of spatial patterns of biological diversity and its causes. Biogeographers synthesize information from a very broad range of fields, including geology, ecology, paleontology, and climatology. This course is an introduction to the dynamics of biological distributions, speciation, extinction, and dispersals, island biogeography, and applications to species and biodiversity mapping, and the design and management of reserves and other protected natural territories. May not be used for degree credit with GEOG 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4063 Geoarchaeology and Environmental History
Description: Theoretical and methodological aspects of geoarchaeology, a discipline that aims at recovering field data for reconstructing environment-society relationships of the past. Key themes include climate change and human-induced land transformation as demonstrated through interdisciplinary research in different geomorphic contexts and cultural groups (hunter gatherers, agriculturalists, and urbanites) from around the world. Meets with GEOG 5063. No credit for students with credit in GEOG 5063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4073 Climate Change: Past, Present, and Future
Description: Aims at understanding and discussing the mechanisms of global climate change and how they have functioned in our past, in the recent decades and how scientists predict possible changes in the near and distant future. Meets with GEOG 5073. No credit for students with credit in GEOG 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4083 Grasslands and Savannas: Evolution and Environmental Issues
Description: This course is an analysis of the nature, distribution, and evolution of grasslands, savannas, and other grass-dominated ecosystems around the world, with emphasis on their co-evolutionary development with climate, herbivore, fire, and humans, and the challenges faced modern global climate change and human development. Meets with GEOG 5083. No credit for students with credit in GEOG 5083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4093 Global Water Resources & Sustainability
Description: Water resources are key to the success of societies in all of their various forms. This course connects fundamental concepts of water resources, including natural processes of the hydrological cycle and societal threats to water quantity and quality, to a water security conceptual framework. With reference to SDG 6, topical issues will be explored in major international case studies to help students develop an awareness and appreciation for the multiple perspectives of water as a precious resource, commodity, and point of justice. May not be used for degree credit with GEOG 5093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4103 Historical Geography of North America since 1800 (H)
Description: Examination of North American development over the 19th Century, with emphasis on the transformation of environments, landscapes and culture regions. Investigation of settlement frontiers, indigenous dispossession, transport integration, resource exploitation, economic specialization, sectional divergence, industrialization, immigration, and urbanization. Same course as HIST 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Human Heritage & Cultures

GEOG 4113 Environment and Development
Description: Focuses on the relationship between people and poverty, environment, and development under different international contexts. The course covers competing theories of environment-development drawing from neoclassical economics and modernization agendas, to criticisms from postcolonial theory and beyond. Special emphasis is placed on diverse voices from the Global South, sustainable development, gender, race and nature, and new social movements. May not be used for degree credit with GEOG 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4123 Geographical Aspects of Urban Planning
Description: Spatial aspects of urban planning: development of planning theory, various planning tools, and specific problem areas such as urban renewal and urban transportation. May not be used for degree credit with GEOG 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4143 Geography of Travel and Tourism
Description: A systematic and comprehensive analysis of the geographical dimensions of tourism, illustrating the relevance of a spatial perspective to tourism planning, development, and management. Economic, social, and environmental impact of both domestic and international tourism considered. May not be used for degree credit with GEOG 5143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4153 Geography of Outdoor Recreation
Description: Analysis of patterns of outdoor recreation with an emphasis on land-use planning in park and wildland areas. Demand forecasting methods, the analysis of the socioeconomic and spatial impacts of recreation facilities provision and visitor management practices. May not be used for degree credit with GEOG 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4163 Resource Management in the National Parks
Description: Contemporary resource management issues in U.S. National Park units. The role of human and natural processes in the management of water, air, biotic and cultural resources. No credit for students with credit in GEOG 5163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4203 Fundamentals of Geographic Information Systems
Description: Geographic Information Systems (GIS) are pivotal in the analysis and management of geographic data. They are used to link environmental, social, and economic data to locations on earth and explore the relationships, trends, and patterns that emerge. This course introduces the concepts, principles, and theories behind GIS, with emphasis on the nature of geographic information, methods for data collection, data models for storing geographic information, techniques for data input and manipulation, and basic spatial analysis. Previously offered as GEOG 2343. May not be used for degree credit with GEOG 5103.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 4213 Sport, Place and Society (S)
Description: Spatial analysis of sport; its origin and diffusion, geographical organization and regional variation. Geographical movements and interaction associated with sport. Application of geographical solutions for reorganization and reform. Focus on both U.S. and international scene.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Society & Human Behavior

GEOG 4223 Geography of Music (H)
Description: Geographical and historical analysis of music as a cultural trait. The cultural significance of music and how it varies from place to place as well as how it helps shape the character of a place.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Human Heritage & Cultures

GEOG 4233 Human Dimensions of Global Environmental Change
Description: Discusses the current global environmental science research agendas called for by the international community, explores the arguments set forth regarding global environmental change, and looks at the current explanations and theories explaining the human dimensions of land-use/cover-change (lucc). Special emphasis is on alternative, competing visions, and needs of developing countries within the context of economic development and global environmental change. Meets with GEOG 5233. No credit for students with credit in GEOG 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4263 Geospatial Applications for Unmanned Aerial Systems
Prerequisites: Consent of instructor.
Description: Provides theoretical foundation for use of unmanned aerial systems (UAS) to collect geospatial data for analysis. Examines principles of remote sensing, photogrammetry, and GIS relevant to UAS. Enabling technologies (sensors, GPS), data collection procedures, data processing (structure from Motion algorithms), data products (point clouds, orthophotos), and appropriate analysis techniques are investigated. Geospatial application areas include terrain modeling, resource management, agriculture, forestry/vegetation, natural disasters, and geomorphology. May not be used for degree credit with GEOG 5263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4273 Land Use Science
Description: Basic understanding of human land use history and changes. Evaluation of land use impacts on environment, climate, and public health. Introduction to land use monitoring and modeling using geospatial technologies. Meet with GEOG 5273. No credit for students with credit in GEOG 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4303 Applications of the Global Positioning System in Field Research
Description: Theory and applications of the Global Positioning System (GPS), focusing on accuracy issues in field data collection and integration with geographic information systems (GIS). Use of both recreation and mapping grade receivers. May not be used for degree credit with GEOG 5503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4313 Field Techniques and Geodata Collection
Prerequisites: Senior standing in GEOG or consent of instructor.
Description: Application of the concepts, methods, and field techniques for geographical analysis and research, including data acquisition, manipulation, analysis, and the presentation of results. Capstone course. Field trips.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4323 Mapping in Modern Society
Description: Thematic mapping and geovisualization of socioeconomic, cultural, and natural resource information. Discussion and application of various map design and layout techniques. Topics include the history of maps their types and usages, the various elements of a map layout, and how maps enable us to communicate spatial information in our modern world.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 4333 Remote Sensing
Description: Introductory course in remote sensing focusing on digital image processing. Topics include data collection via satellites and unmanned aerial systems (a.k.a. drones), principles of electromagnetic radiation, multispectral, thermal, and light detection and ranging (LIDAR), and field data collection. Discussions focus on environmental applications including: agriculture, natural resource management, climate, geography, and wildlife management. Hands-on exposure to current image processing software. Meets with GEOG 5333. May not be used for degree credit with GEOG 5333.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 4343 Geographic Information Systems: Resource Management Applications
Prerequisites: GEOG 4203.
Description: Provides a theoretical and practical understanding of geographic information systems and its applications in natural resource management. Introduces industry popular GIS software for spatial and aspatial data analysis. Explores specific conditions, requirements, and processing considerations that allow geospatial data to be manipulated for problem solving. Meets with GEOG 5323. No degree credit for students with credit in GEOG 5323.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 4353 Geographic Information Systems: Socioeconomic Applications
Prerequisites: GEOG 4203.
Description: Theory and principles of geographic information systems (GIS) applied to socioeconomic problems, including location-allocation, market area determination, network analysis and analysis of demographic characteristics. May not be used for degree credit with GEOG 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4373 Geographic Information Systems in Public Health
Description: Introduces the foundations and applications of health geography and GIS in understanding patterns of disease, healthcare access, and health outcomes. Beginning with “What is Health Geography?”, students explore how spatial thinking informs public health research and practice. The course covers essential GIS concepts, health data sources, and mapping techniques tailored to health applications. Students learn how to collect, manage, and analyze spatial health data, design effective health maps, and communicate through mapping and storytelling. May not be used for degree credit with GEOG 5373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4383 Geospatial Programming with Python and AI Tools
Prerequisites: GEOG 4203
Description: This course is designed for students with limited coding experience who are interested in learning Python to explore geospatial data. It introduces basic programming concepts, with emphasis on Python scripting to automate geoprocessing tasks in ArcGIS Pro. It also covers open-source Python packages such as Pandas, GeoPandas, and Matplotlib for processing and visualizing spatial data. As AI gains popularity, the course introduces various AI tools, including ChatGPT and GitHub Copilot, to enhance students’ geospatial programming skills. May not be used for degree credit with GEOG 5383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4443 Sustainable Tourism and Geography
Prerequisites: Junior or senior standing or consent of instructor.
Description: This course examines sustainable tourism from a cultural and environmental perspective. It discusses concepts and theories of sustainability and tourism, including human rights, environmental justice, and ethics, emphasizing the global environmental and social effects and possibilities of tourism. The course addresses management concepts, sectoral approaches, transport and mobility themes, and emerging issues in the context of sustainability. May not be used for degree credit with GEOG 5443. Same course as GLST 4443 and HRAD 4183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4453 Black Geographies & Memorialization in the Landscape (DH)
Prerequisites: Junior or senior standing or consent of instructor.
Description: How and why have African American people sought to memorialize their history in public places? How have Black counterpublics shaped discourse on memorials to African American history? What has this discourse done to the field of landscape and memory studies? To explore these questions, this course is organized around memory in the landscape as it relates to black geographies, including, for example, slavery, the Civil War, civil rights, and the Tulsa Race Massacre in the United States. Approaches may be comparative or transnational. Same course as AMST 4453 and AFAM 4453. May not be used for degree credit with GEOG 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

GEOG 4510 Senior Project
Prerequisites: Senior standing and consent of instructor.
Description: Individually designed projects involving laboratory work, field work, library research or a combination of these. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geography

GEOG 4600 Geography Study Abroad (G)
Description: Participation in an international experience sponsored by the Department of Geography. Study Abroad courses typically involve the study of a country or region to provide an integrated understanding, through research and personal experience, of relevant cultural, historical, political, economic and environmental issues. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension

GEOG 4633 Introduction to Geospatial Artificial Intelligence
Prerequisites: GEOG 4203 (Fundamentals of GIS).
Description: Geospatial Artificial Intelligence (GeoAI) is an emerging field at the intersection of GIS and AI. It emphasizes the development and application of AI techniques to address critical challenges. This course provides a hands-on introduction to GeoAI, blending theory with practice. Students will gain foundational skills in Python programming and learn how to integrate geospatial data with modern AI approaches, including machine learning, deep learning, large language models (LLMs), and geospatial foundation models. No prior AI experience is required. Same course as GEOG 5633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GEOG 4663 Web GIS: Trends, Principles, and Applications
Prerequisites: GEOG 4203.
Description: Web GIS has immense applicability to business, health, economics, transportation, and more. This course is designed to increase students' knowledge of Web GIS and cutting-edge GIS skills. It introduces basic Web GIS concepts, principles, techniques, including web mapping applications. In addition, this course offers essential web programming skills to build customized online maps. May not be used for degree credit with GEOG 5663.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 4910 Topics In Geography
Prerequisites: Consent of instructor.
Description: Specialized physical, social and methodological topics in geography. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geography

GEOG 4930 Readings in Geography
Prerequisites: Consent of instructor.
Description: Directed readings on selected topics, regions or methods in geography. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geography

GEOG 4940 Undergraduate Cooperative Education Internship
Prerequisites: Consent of departmental internship coordinator and undergraduate committee.
Description: Practical experience in applying geographical concepts and tools to business or governmental problems. Emphasis on educational aspects of applying discipline-related tools to real-world problems. Credit not available for regular employment positions; must have fixed start/end dates. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geography

GEOG 4943 Geospatial Information Science Internship/Research Capstone
Description: Provides an opportunity to apply knowledge accumulated throughout previous geospatial coursework with a structured off-campus internship or on-campus research capstone. Practical, applied geospatial experience is gained by working with an internship supervisor at a public or private entity in consultation with an affiliated geography faculty member. Alternatively, research-oriented experience is gained through direct collaboration with an affiliated geography faculty member. For both options, student duties may include field-based data collection, data processing, computer programming, spatial analysis/modeling, map and graphics production, oral presentation, and/or writing.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geography

GEOG 4993 Senior Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a senior faculty member, with second faculty reader, both of whom will be present at an oral defense of the thesis. Required for graduation with honors in geography.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geography
General Education and other Course Attributes: Honors Credit

GEOG 5000 Thesis
Prerequisites: Consent of adviser or major professor.
Description: Open only to students working on the master's degree in geography. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 5001 Professional Development in Geography
Description: Introduction and orientation to the graduate program in the Department of Geography.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5023 Arid Lands and Drought
Description: The course explores the world of deserts and semi-deserts, which together cover almost a half of the Earth's land surface, and almost a third of North America's, as well as areas threatened by drought. The course focuses on the nature of dryland environments and the challenges faced by human communities living in such environments, as well as the mechanisms of drought and desertification.No credit for students with credit in GEOG 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5053 Biogeography, Biodiversity, and Humankind
Description: Biogeography is the study of spatial patterns of biological diversity and its causes. Biogeographers synthesize information from a very broad range of fields, including geology, ecology, paleontology, and climatology. This course is an introduction to the dynamics of biological distributions, speciation, extinction, and dispersals, island biogeography, and applications to species and biodiversity mapping, and the design and management of reserves and other protected natural territories. No credit for students with credit in GEOG 4053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5063 Geoarchaeology and Environmental History
Description: Theoretical and methodological aspects of geoarchaeology, a discipline that aims at recovering field data for reconstructing environment-society relationships of the past. Key themes include climate change and human-induced land transformation as demonstrated through interdisciplinary research in different geomorphic contexts and cultural groups (hunter gatherers, agriculturalists, and urbanites) from around the world. Meets with GEOG 4063. No credit for students with credit in GEOG 4063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5073 Climate Change: Past, Present and Future
Description: Aims at understanding and discussing the mechanisms of global climate change and how they have functioned in our past, in the recent decades and how scientists predict possible changes in the near and distant future. Meets with GEOG 4073. No credit for students with credit in GEOG 4073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5083 Grasslands and Savannas: Evolution and Environmental Issues
Description: This course is an analysis of the nature, distribution, and evolution of grasslands, savannas, and other grass-dominated ecosystems around the world, with emphasis on their co-evolutionary development with climate, herbivore, fire, and humans, and the challenges faced by modern global climate change and human development. No credit for students with credit in GEOG 4083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5093 Global Water Resources & Sustainability
Description: Water resources are key to the success of societies in all of their various forms. This course connects fundamental concepts of water resources, including natural processes of the hydrological cycle and societal threats to water quantity and quality, to a water security conceptual framework. With reference to SDG 6, topical issues will be explored in major international case studies to help students develop an awareness and appreciation for the multiple perspectives of water as a precious resource, commodity, and point of justice. May not be used for degree credit with GEOG 4093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5103 Fundamentals of Geographic Information Systems
Description: Geographic Information Systems (GIS) are pivotal in the analysis and management of geographic data. They are used to link environmental, social, and economic data to locations on earth and explore the relationships, trends, and patterns that emerge. This course introduces the concepts, principles, and theories behind GIS, with emphasis on the nature of geographic information, methods for data collection, data models for storing geographic information, techniques for data input and manipulation, and basic spatial analysis. May not be used for degree credit with GEOG 4203.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 5113 Landscape Ecology
Prerequisites: Graduate standing and BIOL 3034 or consent of instructor.
Description: Principles of landscape ecology, including structure and function of landscape elements such as patch, corridor, boundary, and matrix. Role of geographic processes, climate, biota, disturbance, and human influences in landscape structure and function. Interaction among landscape elements and role of landscape structure in ecosystem and landscape dynamics. Applications of landscape ecology to biodiversity conservation, wildlife management, and landscape planning. Survey of quantitative methods used in landscape ecology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5123 International Resource Management
Prerequisites: Graduate standing.
Description: Spatial perspectives on the assessment and management of natural resources. The role of resources in world trade, security and international environmental concerns.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5133 Environment and Development
Description: Focuses on the relationship between people and poverty, environment, and development under different international contexts. The course covers competing theories of environment-development drawing from neoclassical economics and modernization agendas, to criticisms from postcolonial theory and beyond. Special emphasis is placed on diverse voices from the Global South, sustainable development, gender, race and nature, and new social movements. May not be used for degree credit with GEOG 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5140 Seminar in Cultural Geography
Prerequisites: Graduate standing in geography or consent of the instructor.
Description: A study of the methodological and theoretical development of cultural geography, one of geography's major subdisciplines. Course is structured around the social and political implications of ways of seeing, and what these have meant for encountering and understanding cultural difference. Emphasis on reading the cultural landscape and interrogating how the landscape reinforces certain ideologies, values, and aesthetics. Critical analysis of geographical representations found in place images, popular culture, and art in relation to social power, race, gender, and identity. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 5143 Geography of Travel and Tourism
Description: A systematic and comprehensive analysis of the geographical dimensions of tourism, illustrating the relevance of a spatial perspective to tourism planning, development, and management. Economic, social, and environmental impact of both domestic and international tourism considered. May not be used for degree credit with GEOG 4143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5150 Geography of Sport, Recreation and Leisure Seminar
Description: This seminar is comprised of an advanced analysis of one or more topics in Sport Geography. The topics can include both cultural and economic issues in the spatial distribution of sport, or any other spatial aspect of the play, diffusion, or impact of sport. The seminar will also focus on student research activities on specific topics to sport geography. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5153 Geography of Outdoor Recreation
Description: Analysis of patterns of outdoor recreation with an emphasis on land-use planning in park and wildland areas. Demand forecasting methods, the analysis of the socioeconomic and spatial impacts of recreation facilities provision and visitor management practices. May not be used for degree credit with GEOG 4153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5163 Resource Management in the National Parks
Description: Contemporary resource management issues in U.S. National Park units. Focus on the role of human and natural processes in the management of water, air, biotic and cultural resources. No credit for students with credit in GEOG 4163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5183 Topics in Transportation Geography
Description: Examination of a selected set of advanced topics in transportation geography, including network analysis, facility location problems, intelligent transportation systems and geographic information systems and logistics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5213 Geographical Aspects of Urban Planning
Description: Spatial aspects of urban planning: development of planning theory, various planning tools, and specific problem areas such as urban renewal and urban transportation. May not be used for degree credit with GEOG 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5233 Human Dimensions of Global Environmental Change
Description: Discusses the current global environmental science research agendas called for by the international community, explores the arguments set forth regarding global environmental change, and looks at the current explanations and theories explaining the human dimensions of land-use/cover-change (lucc). Special emphasis is on alternative, competing visions, and needs of developing countries within the context of economic development and global environmental change. Meets with GEOG 4233. No credit for students with credit in GEOG 4233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5243 Geography of the World's Indigenous Peoples
Prerequisites: Graduate standing and consent of instructor.
Description: A regional survey of indigenous assertions of cultural, political and economic self-determination outside the United States. Native land claims, impact of regional development and environmental issues upon indigenous communities, and their efforts to establish geo-political autonomy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5253 Geographic Information Systems: Socioeconomic Applications
Prerequisites: GEOG 4203.
Description: Theory and principles of geographic information systems (GIS) applied to socioeconomic problems, including location-allocation, market area determination, network analysis and analysis of demographic characteristics. May not be used for degree credit with GEOG 4353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5263 Geospatial Applications for Unmanned Aerial Systems
Prerequisites: Consent of instructor.
Description: Provides theoretical foundation for use of unmanned aerial systems (UAS) to collect geospatial data for analysis. Examines principles of remote sensing, photogrammetry, and GIS relevant to UAS. Enabling technologies (sensors, GPS), data collection procedures, data processing (Structure from Motion algorithms), data products (point clouds, orthophotos), and appropriate analysis techniques are investigated. Geospatial application areas include terrain modeling, resource management, agriculture, forestry/vegetation, natural disasters, and geomorphology. May not be used for degree credit with GEOG 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5273 Land Use Science
Description: Basic understanding of human land use history and changes. Evaluation of land use impacts on environment, climate, and public health. Introduction to land use monitoring and modeling using geospatial technologies. Meets with GEOG 4273. No credit for students with credit in GEOG 4273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5303 Geographic Analysis I
Prerequisites: One course in statistics.
Description: An intermediate course in the application of statistical methods to spatial problems. Focuses on multivariate methods (e.g. multiple regression, factor and cluster analysis) and their use in geographic settings and with spatial datasets. Includes introductory spatial regression, methods for detecting spatial clusters (spatial autocorrelation), and the importance of exploratory spatial data analysis (ESDA) in geographic research. Course previously offered as GEOG 5313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5323 Geographic Information Systems: Resource Management Applications
Prerequisites: GEOG 4203 or instructor permission.
Description: Provides a theoretical and practical understanding of geographic information systems and its applications in natural resource management. Introduces industry popular GIS software for spatial and aspatial data analysis. Explores specific conditions, requirements, and processing considerations that allow geospatial data to be manipulated for problem solving. Meets with GEOG 4343. No degree credit for students with credit in GEOG 4343.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 5333 Remote Sensing
Description: Introductory course in remote sensing focusing on digital image processing. Topics include data collection via satellites and unmanned aerial systems (a.k.a. drones), principles of electromagnetic radiation, multispectral, thermal, and light detection and ranging (LIDAR), and field data collection. Discussions focus on environmental applications including: agriculture, natural resource management, climate, geography, and wildlife management. Hands-on exposure to current image processing software. Meets with GEOG 4333. May not be used for degree credit with GEOG 4333.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 5343 Advanced Geographic Information Systems: Resource Management Applications
Prerequisites: GEOG 4343 or GEOG 5323.
Description: Advanced theory and applications of geographic information systems (GIS) applied to resource management problems using both raster and vector data structures. Individual projects, presentations and group discussion sessions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5353 Advanced Geographic Information Systems: Socioeconomic Applications
Prerequisites: GEOG 4353 or GEOG 5253.
Description: Advanced theory and applications of geographic information systems (GIS) applied to socioeconomic problems including location allocation, market area determination, network analysis, and analysis of demographic characteristics. Individual projects, presentations and group discussion sessions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5363 Enterprise Geographic Information Systems
Prerequisites: GEOG 4353 or equivalent.
Description: Basic setup and creation of online geodatabases and Internet mapping services as would be used in a large scale GIS operation or enterprise. Geodatabase design and Internet mapservice Web site development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5373 Geographic Information Systems in Public Health
Description: Introduces students to foundations and applications of health geography and GIS in understanding patterns of disease, healthcare access, and health outcomes. Beginning with “What is Health Geography?”, students explore how spatial thinking informs public health research and practice. Course covers essential GIS concepts, health data sources, and mapping techniques tailored to health applications. Students learn how to collect, manage, and analyze spatial health data, design health maps, and communicate through mapping and storytelling. May not be used for degree credit with GEOG 4373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5383 Geospatial Programming with Python and AI Tools
Prerequisites: GEOG 4203 or GEOG 5103
Description: This course is designed for students with limited coding experience who are interested in learning Python to explore geospatial data. It introduces basic programming concepts, with emphasis on Python scripting to automate geoprocessing tasks in ArcGIS Pro. It also covers open-source Python packages such as Pandas, GeoPandas, and Matplotlib for processing and visualizing spatial data. As AI gains popularity, the course introduces various AI tools, including ChatGPT and GitHub Copilot, to enhance students' geospatial programming skills. May not be used for degree credit with GEOG 4383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5393 Remote Sensing of Water Resources
Prerequisites: GEOG 2323 or GEOG 4333.
Description: Advanced theories and techniques of remote sensing applied to various issues in water resources management. Sensor characteristics, theoretical algorithms, digital image processing, and field methods to extract information of multiple aspects valuable for both hydrological modeling and decision-making. Advantages and limitations of remote sensing compared to traditional methods will be explored.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5403 Current Geographic Research
Prerequisites: Graduate standing in geography or consent of instructor.
Description: Representative survey of current research across the discipline of modern Geography so as to broaden perspectives and appreciation of Geography's breadth and impact. Emphasis on the discipline's major affinity groups, their notable institutions and individuals, and their impact toward the greater good. Exercises familiarize students with the process of developing a thesis or dissertation proposal, from determining an area of emphasis, identifying a research problem, conducting a literature review, and developing and defending a thesis or dissertation proposal.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5413 History and Philosophy of Geography
Prerequisites: Graduate standing in geography or consent of the instructor.
Description: Study of the making of geography as an academic discipline, and the evolution of geographic thought and practice. A critical inquiry into the production of geographic knowledge as it has changed over time and in relation to developments in science and society. Discussions examine significant theoretical and methodological "turns" and explore the influences of key individuals, institutions, and major debates.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5423 Geographic Renderings in Qualitative Methods
Prerequisites: SCFD 5913 or SCFD 6123 or SOC 5273 or consent of instructor.
Description: Seminar engages with geographic facets in qualitative research and provides students with experience in collecting and working with qualitative data. Students explore avenues of qualitative inquiry in cross-cultural, community participation, and storytelling/testimonial/oral history/life history, and ethnographic research with special consideration to space, place, scale, context, body, and senses. Course addresses issues involved with analysis, interpretation, and "writing-up" research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5443 Sustainable Tourism and Geography
Prerequisites: Junior or senior standing or consent of instructor.
Description: This course examines sustainable tourism from a cultural and environmental perspective. It discusses concepts and theories of sustainability and tourism, including human rights, environmental justice, and ethics, emphasizing the global environmental and social effects and possibilities of tourism. The course addresses management concepts, sectoral approaches, transport and mobility themes, and emerging issues in the context of sustainability. May not be used for degree credit with GEOG 4443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5450 Seminar in Geography
Prerequisites: Graduate standing in geography or consent of instructor.
Description: Specialized topics in Geography. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 5453 Black Geographies & Memorialization in the Landscape
Description: How and why have African American people sought to memorialize their history in public places? How have Black counterpublics shaped discourse on memorials to African American history? What has this discourse done to the field of landscape and memory studies? To explore these questions, this course is organized around memory in the landscape as it relates to black geographies, including, for example, slavery, the Civil War, civil rights, and the Tulsa Race Massacre in the United States. Approaches may be comparative or transnational. May not be used for degree credit with AFAM 4453, AMST 4453, or GEOG 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5503 Applications of the Global Positioning System in Field Research
Description: Theory and applications of the Global Positioning System (GPS), focusing on accuracy issues in field data collection and integration with geographic information systems (GIS). Use of both recreation and mapping grade receivers. May not be used for degree credit with GEOG 4303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5510 Research Problems in Geography
Prerequisites: Consent of instructor.
Description: Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 5633 Introduction to Geospatial Artificial Intelligence
Prerequisites: GEOG 5103 (Fundamentals of GIS).
Description: Geospatial Artificial Intelligence (GeoAI) is an emerging field at the intersection of GIS and AI. It emphasizes the development and application of AI techniques to address critical challenges. This course provides a hands-on introduction to GeoAI, blending theory with practice. Students will gain foundational skills in Python programming and learn how to integrate geospatial data with modern AI approaches, including machine learning, deep learning, large language models (LLMs), and geospatial foundation models. No prior AI experience is required. Same course as GEOG 4633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5663 Web GIS: Trends, Principles, and Applications
Prerequisites: GEOG 4203 or instructor permission.
Description: Web GIS has immense applicability to business, health, economics, transportation, and more. This course is designed to increase students' knowledge of Web GIS and cutting-edge GIS skills. It introduces basic Web GIS concepts, principles, techniques, including web mapping applications. In addition, this course offers essential web programming skills to build customized online maps. May not be used for degree credit with GEOG 4663.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GEOG 5700 Geography Study Abroad
Description: Participation in an international experience sponsored by the Department of Geography. Study Abroad courses typically involve the study of a country or region to provide an integrated understanding, through research and personal experience, of relevant cultural, historical, political, economic, and environmental issues. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 5930 Readings in Geography
Prerequisites: Consent of instructor.
Description: Directed readings on selected topics, regions or methods in geography. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 5940 Graduate Cooperative Education Internship
Prerequisites: Consent of departmental internship coordinator and graduate committee.
Description: Practical experience in applying geographical concepts and tools to business or governmental problems. Emphasis on educational aspects of applying discipline-related tools to real-world problems. Credit not available for regular employment positions; must have fixed start/end dates. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 6000 Doctoral Dissertation Research
Prerequisites: Admission to candidacy and consent of major professor.
Description: Offered for variable credit, 1-12 credit hours, maximum of 30 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 6013 Seminar in Quaternary Paleoecology
Prerequisites: Graduate standing in geography or consent of instructor.
Description: Analysis and discussion of various aspects of research on the Quaternary period, emphasizing the roles played by climate, geomorphic processes, vegetation, soil and fauna.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 6110 Seminar in Cultural and Political Ecology
Prerequisites: Graduate standing in geography or consent of instructor.
Description: Study of the relationship between culture and environment and competing theories of human-environment interactions. Traces the roots of cultural ecology starting with classic ecological systems and adaptation theory, to criticisms leading to the development of "political" and "hybrid" ecologies. Course focuses on Marxist influences, inequalities of third world development, gender and resource management, social and environmental movements, indigenous knowledge, natural disasters and environmental vulnerability. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 6120 Seminar in Urban Geography
Prerequisites: Graduate standing in geography or consent of instructor.
Description: Analysis of research on urban systems, internal morphology, urban problems and urban spatial behavior. Review and analysis of student research efforts. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 6130 Seminar in Political Geography
Prerequisites: Graduate standing in geography or consent of instructor.
Description: Theoretical foundations of political geography from MacKinder and Hartshorne to recent writings by Smith, Anderson and other modern theorists. Nationalism, national identity, state formation and cohesion considered in a spatial context. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 6180 Seminar in Transportation Geography
Prerequisites: Graduate standing.
Description: Examination of transportation systems, emphasizing their effects on trade, land use, location issues, and development. Review of trends, problems, and methods related to transport issues. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 6210 Seminar in Historical Geography
Prerequisites: Graduate standing.
Description: This seminar explores historical geographic research concerning places and environments, the dynamics of place, space, and landscape as well as how the past shapes the geographies of the present and the future. It considers methodological practices and theoretical understandings associated with historical geographic scholarship. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 6303 Geographic Analysis II
Prerequisites: GEOG 5303.
Description: An advanced course in the application of statistical methods to spatial problems. Focuses on univariate and bivariate spatial autocorrelation, geographically weighted regression (GWR), spatial weighting, and visualization of geostatistical data. Heavy emphasis on current research in geospatial techniques and student research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 6313 Mixed Methods in Field Research
Prerequisites: Graduate standing in geography or consent of instructor.
Description: This course will expose students to a variety of qualitative and quantitative techniques useful in successfully designing and completing field research. Special focus will include research and survey design, interviewing, ethnography, and visual techniques such as the use of imagery, photography, sketch mapping, and Global Positioning Systems (GPS) for the collection and analysis of geospatial data. Required field trips.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 6333 Advanced Remote Sensing
Prerequisites: GEOG 4333 or GEOG 5333.
Description: Provides in-depth theoretical exploration of advanced remote sensing and image analysis techniques. Special topics include advanced classifications, hyperspectral imagery, and LiDAR. Specific issues surrounding data capture, image processing, and analysis will be discussed to prepare students for semester-long research projects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geography

GEOG 6910 Topics in Geography
Prerequisites: Consent of instructor.
Description: Specialized physical, social and methodological topics in geography. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

GEOG 6930 Readings in Geography
Prerequisites: Consent of instructor.
Description: Directed readings on selected topics, regions or methods in geography. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Geography

Geology (GEOL)

GEOL 1003 The Story of Dinosaurs (N)
Description: This course will explore the validity of arguments and/or conclusion in dinosaur research through evaluating the scientific evidence. In this course, students will read, experiment, and evaluate scientific literature surrounding dinosaurs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

GEOL 1013 Exploring Earth: An Introduction to Geology (LN)
Description: An introductory course for non-science majors which will investigate how chemical, physical and biological processes interact to shape and regulate the Earth's environment. Will build your understanding of how each part of the Earth system – the ocean, atmosphere and interior – work and interact over time.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

GEOL 1014 Geology and Human Affairs (LN)
Description: The influence of geology and related earth sciences on the human environment. Energy and material resources, beneficial and hazardous natural processes, and the planetary and biological evolution of earth. Lab investigations environmentally oriented. Lab fees required for online section.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

GEOL 1022 Climate Change and Humanity (N)
Description: Focus on the development of scientific inquiry and critical thinking skills needed to evaluate complex relationships among climate, energy production, and the environment. Students will explore causes and consequences of climate change and consider climate change science from alternative perspectives. Same course as GEOG 1022.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning

GEOL 1111 Physical Geology Lab (L)
Prerequisites: (Co-requisite) GEOL 1113.
Description: Laboratory section to be taken concurrently with GEOL 1113. This course will primarily serve to reinforce the scientific method, introduce students to geological material classification, introduce quantitative methods in earth materials analysis, and teach students map analysis methods commonly undertaken by geoscientists to help serve societal needs. Concurrent enrollment in GEOL 1113 is required.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Geology
General Education and other Course Attributes: Laboratory-Based Inquiry

GEOL 1113 Physical Geology (N)
Prerequisites: GEOL 1111 (corequisite).
Description: Composition and structure of the earth and the modification of its surface by internal and external processes. Mineral resources, sources of energy, and environmental aspects of geology. Recommended introductory course for science majors. Field trip required. Concurrent enrollment in GEOL 1111 is required. May not be used for degree credit with GEOL 1114.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning

GEOL 1114 Physical Geology (LN)
Prerequisites: MATH 1483 or MATH 1513 or higher; or an acceptable math placement score or AP credit (see http://placement.okstate.edu).
Description: Composition and structure of the earth and the modification of its surface by internal and external processes. Mineral resources, sources of energy, and environmental aspects of geology. Recommended introductory course for science majors. Field trip required. May not be used for degree credit with GEOL 1113.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning
Additional Fees: Geology 1114 Field Trip fee of $45 applies.

GEOL 1214 Introductory Geological Processes (LN)
Description: This course is intended to introduce geoscience students to geological processes and foundational concepts within the geosciences, primarily through field-based instruction and exercises, as well as introducing students to the geology of Oklahoma. Field trips required.
Credit hours: 4
Contact hours: Lecture: 1 Contact: 4 Other: 3
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Geology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

GEOL 1224 Evolution of the Earth (LN)
Prerequisites: High school biology and chemistry recommended.
Description: A survey of the physical and biological history of the Earth from the coalescence of the solar system to the present. Field trips required.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning
Additional Fees: GEOL 1224 Field Trip fee of $25 applies.

GEOL 2013 Geology of the National Parks (N)
Description: The geologic characteristics of national parks and scenic regions in North America and throughout the world. Intended for non-majors. Previously offered as GEOL 3043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning

GEOL 2030 Geologic Field Experience
Description: One to three weeks of required field study at sites of geological interest and significance. Field trip charges apply. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geology

GEOL 2043 Water on Earth
Description: The science of water, including surface water, ground water, water quality, pollution, and legal issues. Interrelations between the sciences and humanities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 2103 Fundamentals of Geophysics
Prerequisites: Minimum grade of "C" in: (GEOL 1014 or GEOL 1114 or GEOL 1214) and (PHYS 1114 or PHYS 2014 or acceptable AP credit).
Description: Course will introduce students to the basic concepts of geophysics. Students will gain theoretical and field experience with multiple geophysical techniques, such as: gravity, magnetic, seismic reflection/refraction, electrical resistivity, induced polarization, self-potential, ground penetrating radar and radiometrics and their applications in oil and gas, minerals, groundwater, and the environment. Field trip required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 2254 Practical Mineralogy
Prerequisites: GEOL 1014 or GEOL 1114 and CHEM 1314 or CHEM 1414 completed with a grade of "C" or higher.
Description: Hand-specimen identification of minerals using physical and chemical properties. Introductory optical identification of common rock forming minerals. Society's utilization of mineral resources. Field trips required. May not be used for degree credit with GEOL 2464.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 2364 Igneous and Metamorphic Petrology
Prerequisites: GEOL 2254 completed with a grade of "C" or higher.
Description: Origin, occurrence and classification of igneous and metamorphic rocks; hand-specimen and thin section identification. Optional field trip. May not be used for degree credit with GEOL 2464.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 2403 Chemistry of Earth Systems
Prerequisites: Minimum grade of "C" in (GEOL 1014 or GEOL 1114 or GEOL 1214) and (CHEM 1314 or CHEM 1414).
Description: This course will teach the basics of geochemistry as applied to Earth Systems, including topics and concerns related to the atmosphere, geosphere, biosphere, hydrosphere, and anthroposphere. Basic lab and field skills will also be introduced, including fundamentals of environmental measurement practices, geochemical instrumentation, and basic water and sediment sampling techniques.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 2443 Environmental Geology and Human Health (N)
Description: This course explores the connections between human health and environmental geological processes. Key concepts in geology are introduced as well as the pathways through which natural systems affect human health. Topics of interest will include exposures to asbestos, dust and aerosols, coal, and mercury. Course recommended for anyone with an interest in environmental or public health or for those just curious to know more about how the environment affects our health.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning

GEOL 2773 Introduction to Planetary Geology (N)
Description: Introduction to the geology of terrestrial planets and moons, exploring volcanism, plate tectonics, atmospheres, and planetary formation, as well as how meteorites and asteroids give insight into the formation of planetary systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning

GEOL 2890 Honors Experience in Geology
Prerequisites: Honors Program participation and concurrent enrollment in designated course(s).
Description: A supplemental Honors experience in Geology to partner concurrently with designated lower-division GEOL course(s). This course adds a different intellectual dimension to designated course(s). Offered for fixed credit, 1 credit hour.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Honors Credit

GEOL 2990 Special Topics in Earth Science
Description: Selected topics in Geoscience presented in lecture or seminar format. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 3013 Field Methods in the Geosciences
Prerequisites: GEOL 1114 or GEOL 1014 or GEOL 1214
Description: This course is designed to help students develop basic skills in critical field methods utilized in later curricula and professional settings. The course focuses on field-intensive exercises and projects and includes multiple field trips.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 3014 Structural Geology
Prerequisites: Minimum grade of "C" in: GEOL 2464 and (PHYS 1114 or PHYS 2014 or acceptable AP credit).
Description: Behavior of earth materials during various deformational processes and analysis of the resulting structural features such as folds, faults and fractures.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology
Additional Fees: GEOL 3014 Field Trip fee of $40 applies.

GEOL 3034 Principles of Stratigraphy and Sedimentology
Prerequisites: GEOL 1224 and GEOL 2464 each with a grade of "C" or higher.
Description: Principles of stratigraphy and their applications. Survey of sedimentary rock types, principles of description and classification, origin of sedimentary deposits, analysis of stratigraphic sequences. Topics include depositional systems; litho- and biostratigraphy; geochronology and chronostratigraphy; magnetic, seismic, and sequence stratigraphy; tectonic vs. climatic controls. Field work required. Previously offered as GEOL 3033.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 3044 Rocks and Minerals
Prerequisites: Minimum grade of "C" in (GEOL 1014 or GEOL 1114 or GEOL 1214) and (CHEM 1314 or CHEM 1414 or acceptable AP credit).
Description: Origin, occurrence, and classification of minerals and igneous and metamorphic rocks; hand-specimen and thin section identification, including optical microscopy. Field trip required. Previously offered as GEOL 2464. May not be used for degree credit with GEOL 2254 and GEOL 2364.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 3073 Geomorphology
Prerequisites: GEOL 1014 or GEOL 1114 or GEOL 1214 or GEOG 1014.
Description: This course will outline key concepts in geomorphology including how different geological processes have shaped and are shaping the surface of the Earth. Summary of different geomorphological research methods. Discussion on how exogenic processes such water, glacier and wind weathering produce different landscapes. Discussion on how endogenic processes such as volcanism and tectonism contributes to geomorphological changes. Discussion of how geomorphological changes affect the climate. May not be used for degree credit with GEOL 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 3103 Paleontology
Description: Basic principles of paleontology involving invertebrates, vertebrates and plants. Course will explore the mechanisms and manifestations of evolution in the fossil record, learn key aspects of fossilized organism identification, and assess paleontology interpretations through hands-on experiential learning exercises. Field trips required.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 3413 Petroleum Geology for Engineers
Prerequisites: CHEM 1314 or CHEM 1414 with a grade of “C” or better.
Description: Examination of the fundamental concepts of petroleum geology with an emphasis on applications to drilling and reservoir engineering. Topics include reservoir architecture, traps and seals, the subsurface environment, wireline logs, geophysics and depositional systems. Field trip required. No degree credit for geology majors.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 3503 Environmental Geology (N)
Prerequisites: GEOL 1014 or GEOL 1114 or GEOL 1214 or consent of instructor.
Description: Application of geologic principles to environmental issues, including human use of the surface and subsurface of the earth and human interaction with extreme natural events such as earthquakes, floods and landslides. Field trip is required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning

GEOL 3513 Earthquakes, Volcanoes, and Disasters (N)
Description: An examination of the causes and effects of natural disasters related to earthquakes, volcanic activity, severe weather, flooding and other natural disasters. The course also examines the effects of these natural hazards on societies and approaches to mitigate the associated risks.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning

GEOL 3546 Field Geology
Prerequisites: Minimum grade of "C" in GEOL 3014 and GEOL 3034.
Description: Five weeks of field methods in geology. Required of all geology majors. Transportation and room and board fees required.
Credit hours: 6
Contact hours: Lab: 12 Contact: 12
Levels: Undergraduate
Schedule types: Lab
Department/School: Geology

GEOL 3890 Advanced Honors Experience in Geology
Prerequisites: Honors Program participation and concurrent enrollment in designated course(s).
Description: A supplemental Honors experience in Geology to partner concurrently with designated upper-division GEOL course(s). This course adds a different intellectual dimension to designated course(s). Offered for fixed credit, 1 credit hour, maximum of 8 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Honors Credit

GEOL 4023 Petroleum Geology
Prerequisites: GEOL 3014 and GEOL 3034.
Description: Origin, migration and accumulation of petroleum, requirements for source rock, reservoir rock and traps. Structure and stratigraphy of selected oil fields. Field trips required. May not be used for degree credit with GEOL 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4030 Geologic Field Investigation
Prerequisites: GEOL 1013, GEOL 1014, GEOL 1114 or GEOL 1224.
Description: One to three weeks of required field study at sites of geological interest and significance. Field trip charges apply. Does not substitute for GEOL 3546. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4103 Introduction to Geophysical Exploration
Prerequisites: MATH 2153 and a "C" or better in PHYS 1214 or PHYS 2114 or acceptable AP credit.
Description: An overview of geophysical methods and their applications to exploration, environmental and engineering problems. Seismic reflection and refraction methods, gravity, magnetic, resistivity and electromagnetic methods. A field trip required. May not be used for degree credit with GEOL 5103.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 4113 Seismic Interpretation
Prerequisites: Minimum grade of "C" in (GEOL 2103 or GEOL 4443) and MATH 2153 and (PHYS 1214 or PHYS 2114).
Description: Examination of the reflection seismic interpretation methods with emphasis on the oil and gas industry. Both structural and stratigraphic methods. Hands-on interpretation using a standard industry software package. May not be used for degree credit with GEOL 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4114 Structural Geology and Tectonics
Prerequisites: GEOL 2464 or concurrent enrollment.
Description: The behavior of Earth materials during various deformational processes and analysis of the resulting features such as folds, faults, and fractures. Earth's evolution with the framework of plate tectonics. Examination of structural associations in relation to tectonic plate boundaries. Mechanisms for plate tectonics and implication for resources and the environment. May not be used for degree credit with GEOL 3014, GEOL 4213, and GEOL 6213. Same course as GEOL 5213.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 4213 Plate Tectonics
Prerequisites: GEOL 3014 or concurrent enrollment.
Description: Earth's evolution within the framework of plate tectonics. Examination of structural associations in relation to tectonic plate boundaries. Mechanisms for plate tectonics and implication for resources and the environment. May not be used for degree credit with GEOL 4114 or GEOL 6213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4300 Geology Colloquium
Prerequisites: Geology majors only.
Description: Discussion of selected topics in the geological sciences with emphasis on professional presentation practices. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geology

GEOL 4303 Geophysical Field Methods
Prerequisites: GEOL 4103.
Description: Hands-on field investigations using the different geophysical surveying methods including electrical resistivity/induced polarization, self potential, electromagnetic, ground penetrating radar, gravity, magnetic, and seismic reflection and refraction. Instrumentation, field data acquisition, and interpretation will be emphasized. Several field trips and field projects required.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 4313 Introduction to Well Log Analysis
Prerequisites: GEOL 3034 with a grade of C or better.
Description: Introduction for undergraduate Geology majors to basic properties of wireline well logs that are useful for those interested in the petroleum industry, subsurface environmental issues, ground water and geothermal energy. This course covers use of well logs to identify lithology, influence of borehole fluids, porosity and permeability on well log properties. Some exercises involve concurrent interpretation of well logs and core samples. Course includes lectures, in-class exercises, homework, and exams. No credit for students who have completed GEOL 4323 or GEOL 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4323 Applied Well Log Analysis for Engineers
Prerequisites: GEOL 3413 with a grade of "C" or higher.
Description: This is a core course for the Minor in Petroleum Engineering. Course material builds on information to prerequisite course Geology 3413. This course covers geologic interpretation of reservoir characteristics based on a variety of well logs; quantitative determination of porosity and permeability, reservoir fluids and how they influence well log properties, calculation of water saturation, introduction to unconventional reservoirs, drilling and logging in lateral holes. May not be used for degree credit with GEOL 4313 or GEOL 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4343 Advanced Petrophysics
Prerequisites: Minimum grade of "C" in PHYS 2014.
Description: Provides theoretical background on physical, chemical, and electrical principles involved in routine core analysis (RCA) and special core analysis (SCAL) generic data acquisition, as well as practical experience in applying computational methods to infer petrophysical properties of rocks from RCA and SCAL data. May not be used for degree credit with GEOL 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4403 Environmental Geochemistry
Prerequisites: GEOL 2403 or (GEOL 1014 or GEOL 1114 and CHEM 1515 or concurrent enrollment).
Description: This course is designed to help students comprehend the major chemical components of natural environments and to apply fundamental principles to understand the main controls on the chemistry of pristine and polluted soil, surface, and ground water environments. May not be used for degree credit with GEOL 5403.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 4423 Groundwater Geochemistry
Prerequisites: Minimum grade of "C" in CHEM 1314 and MATH 2144.
Description: Provides, theoretical background to apply geochemical principles to understand and solve groundwater quality problems, as well as practical experience in applying computational methodologies and tools to predict the response of groundwater systems to natural and anthropogenic disturbances. May not be used for degree credit with GEOL 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4433 Applied Geostatistics
Prerequisites: MATH 2144 with a grade of "C" or higher.
Description: Application of geostatistical principles and tools to solve geology problems associated with the uncertainty and spatial variability of geological data. The focus is on petroleum and hydrological systems. May not be used for degree credit with GEOL 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4443 Environmental Geophysics
Prerequisites: A minimum grade of "C" in MATH 2144 and (PHYS 1114 or PHYS 2014 or GEOL 2103).
Description: This course addresses environmental and engineering geophysical applications to geological characterization in (1) groundwater, aquifer delineation and contaminant migration, (2) slope stability and engineering site characterization, (3) detection of abandoned landfills, underground storage tanks, UXO, (4) earthquake, sinkholes, and land subsidence hazards, and/or (5) non-invasive archeological site assessment. Students will gain hands-on experiences in both collecting geophysical data in the field and processing real field data in the lab. Field trips required. May not be used for degree credit with GEOL 5443.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 4453 Hydrogeology
Description: The water cycle and ground-water systems as well as general problems related to ground-water occurrence, quantity, quality and pollution. Field trip required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4463 Physical Hydrogeology
Prerequisites: Completion of PHYS 1114 or PHYS 2014; GEOL 3503 recommended.
Description: Physical ground-water systems. Realistic problems to acquaint students with ground-water occurrence and movement. Geologic, geophysical, hydraulic testing and modeling techniques used to define an actual ground-water system. Ground-water regulations. Field trips required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
Additional Fees: GEOL 4463 Field Trip fee of $100 applies.

GEOL 4503 Introduction to Oceanography (N)
Prerequisites: College-level chemistry recommended.
Description: Oceanography is an interdisciplinary field incorporating geology, physics, chemistry, and biology. This class will introduce students to oceanic and sedimentary processes, including plate tectonics, oceanic circulation, seawater chemistry, beaches and coastlines, benthic/pelagic sea life, and environmental concerns. Students will also discuss social, political, and economic topics that relate to the ocean.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning

GEOL 4513 Marine Geology
Prerequisites: Minimum grade of "C" in: GEOL 1014 or GEOL 1114 or GEOL 1214 or GEOL 4503.
Description: Comprehensive examination of the geology of the ocean basins. Topics include techniques of data collection and interpretation; shoreline, shelf and deep ocean processes; physical oceanography; origin and distribution of marine sediments; paleoceanography; marine mineral resources; marine tectonics and ocean history. May not be used for degree credit with GEOL 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4543 Introduction to Exploration Seismology
Prerequisites: Minimum grade of "C" or better in (GEOL 2103 or GEOL 4443) and MATH 2153 and (PHYS 1214 or PHYS 2114).
Description: Introduction to theory, techniques, and application of seismic to field of hydrocarbon, groundwater, and minerals exploration. Review of fundamentals of wave propagation, historical development of the science, and current literature on application and instrumentation. May not be used for degree credit with GEOL 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4573 Marine Biogeochemical Cycles
Prerequisites: GEOL 3034 with a grade of "C" or better and GEOL 4403 or concurrent enrollment.
Description: Analysis of the interactions between geological processes, biological activity, and chemical cycling for a range of elements. Limited discussion of atmospheric, terrestrial, and freshwater systems as they impact the oceans will also be discussed. Includes discussions of changes in elemental cycles through Earth's history and comparison to present-day patterns. May not be used for degree credit with GEOL 5573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4583 Environmental Data Analytics
Prerequisites: Minimum grade of "C" in MATH 2144.
Description: Provides theoretical background and practical experience in extracting meaning from complex and heterogeneous environmental data sources to understand and manage the natural environment (geosphere, hydrosphere, biosphere, and atmosphere). May not be used for degree credit with GEOL 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4613 Magmatism and Metamorphism
Prerequisites: GEOL 2464.
Description: Exploration of the processes and environments in which magmatic and metamorphic rocks form, using aspects of mineralogy, petrology, geochemistry and plate tectonics. Will include lab and field examination of rocks, use of phase diagrams, thermodynamics and geochemical data. Field Trip required.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 4643 Seismic Data Processing
Prerequisites: MATH 2144 and (PHYS 1114 or PHYS 2014) strongly recommended.
Description: Theoretical background and practical training in the processing of seismic reflection and refraction data for petroleum, environmental, and engineering applications. Hands-on digital data processing using standard industry software. Topics to be covered include digital filtering, statics corrections, velocity analysis, deconvolution, stacking, and migration. May not be used for degree credit with GEOL 5643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4673 Critical Earth Materials
Prerequisites: GEOL 2464.
Description: The distribution, geological setting and genesis of metalliferous and non-metalliferous mineral deposits of economic value. Factors controlling the formation of these deposits and the linkages with many other geologic processes covered in other courses are explored. Discussion of geopolitical considerations to the exploration and production of critical earth materials.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 4753 Volcanology
Prerequisites: GEOL 2464 completed with a grade of "C" or higher.
Description: Examination of volcanic processes, products, and structures on Earth and other terrestrial bodies. Optional field trip. May not be used for degree credit with GEOL 5753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology

GEOL 4773 Planetary Geology (N)
Prerequisites: GEOL 1114 (required) and GEOL 3073 (recommended).
Description: Geology of planets and planetary bodies, including geomorphology, tectonics, geochemistry, and geophysics; perspectives on exploration; and life in the universe.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Natural Science Reasoning

GEOL 4981 Geoscience Internship
Prerequisites: Consent of instructor.
Description: Student participation in a research project during an internship in a Geoscience-related professional work setting. Graded on a pass/fail basis.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geology

GEOL 4990 Special Problems in Earth Science
Prerequisites: Permission of instructor.
Description: Individually designed study projects involving assigned reading, library work, field work, laboratory work or a combination of these. Field trips may be required. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Geology

GEOL 4993 Senior Honors Thesis
Prerequisites: Permission of instructor.
Description: A guided reading and research program ending with a thesis under direction of a senior faculty member, with a second faculty reader and oral examination.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geology
General Education and other Course Attributes: Honors Credit

GEOL 5000 Master's Thesis
Prerequisites: Approval of graduate committee.
Description: Work toward master's thesis in geology. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Geology

GEOL 5023 Petroleum Geology
Prerequisites: GEOL 3014 and GEOL 3034.
Description: Origin, migration and accumulation of petroleum, requirements for source rock, reservoir rock and traps. Structure and stratigraphy of selected oil fields. Field trips required. May not be used for degree credit with GEOL 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5030 Geologic Field Investigation
Description: One to three weeks of required field study at sites of geological interest and significance. Emphasis will be placed on applicability to graduate research. Field trip charges apply. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5073 Geomorphology
Description: This course will outline key concepts in geomorphology including how different geological processes have shaped and are shaping the surface of the Earth. Summary of different geomorphological research methods. Discussion on how exogenic processes such as water, glacier and wind weathering produce different landscapes. Discussion on how endogenic processes such as volcanism and tectonism contributes to geomorphological changes. Discussion of how geomorphological changes affect the climate. No credit for students with credit in GEOL 3073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5093 Quaternary Geology and Geochronology
Prerequisites: GEOL 3034; MATH 1715 or equivalent; PHYS 2014 and PHYS 2114 or equivalent. All with a grade of "C" or higher.
Description: Examination of the causes and effects of climate change during the ice ages. Survey of dating methods applicable to the Quaternary, including radiocarbon and optical luminescence. Topics include the use of oxygen isotope proxy records, paleomagnetism, cosmogenic nuclides, isostasy and post-glacial rebound, causes of sea-level change, and ice age history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5100 Problems in Hydrogeology
Prerequisites: GEOL 4453.
Description: Advanced problems in hydrogeology with emphasis on quantitative methods. Field trips may be required. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Geology

GEOL 5103 Introduction to Geophysical Exploration
Prerequisites: MATH 2153 and a "C" or better in PHYS 1214 or PHYS 2114 or acceptable AP credit.
Description: An overview of geophysical methods and their applications to exploration, environmental and engineering problems. Seismic reflection and refraction methods, gravity, magnetic, resistivity and electromagnetic methods. Field trip required. May not be used for degree credit with GEOL 4103.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5133 Structural Styles in Oil and Gas Exploration
Prerequisites: GEOL 3014 with a grade of "C" or higher.
Description: The theoretical, experimental and descriptive approach to structural styles formed by different tectonic stresses (i.e. extensional, contractional, strike-slip and salt tectonics) and their importance in oil and gas exploration. Course previously offered as GEOL 5203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5143 Geological Remote Sensing
Prerequisites: GEOL 1013 or GEOL 1114 and PHYS 1114 or PHYS 2014 each with a minimum grade of "C".
Description: Many applications of remote sensing exist for geological and environmental issues, and this course introduces the techniques and processes including digital signal processing, statistical data extraction, image enhancement and classification. Students will experiment with different techniques and formulate a research project that can be answered using the techniques.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5183 Paleontology and Paleoceanographic Reconstruction
Prerequisites: Graduate standing or permission of instructor.
Description: This course examines invertebrates, the process of fossilization, taphonomy, and fossil uses in paleontologic reconstructions and biostratigraphy. Students are instructed and expected to complete various sample preparation techniques used in fossil examination. This course has a lecture and lab component. Students in this course should have a basic understanding of biology and evolution. Major ideas and background information will be provided in this course so anyone interested is welcome.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5213 Seismic Interpretation
Description: Examination of reflection seismic interpretation methods with emphasis on the oil and gas industry. Both structural and stratigraphic methods. Hands-on interpretation using a standard industry software package. Previously offered as GEOL 4203. No credit for students with credit in GEOL 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5223 Advanced Methods in Structural Geology
Prerequisites: GEOL 3014.
Description: Techniques in modern structural geology are changing fast. Students in this course will learn to use cutting-edge techniques in structural analysis to solve problems in the geosciences. At the end of this course, you will have collected structural data using a digital data system, analyzed geodetic data to calculate strain, use data collected from uncrewed aerial vehicles to create digital elevation models and characterize fractures, and conduct traditional fracture analyses from outcrop data. Field trips required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5233 Trace Element Geochemistry
Prerequisites: One year of chemistry and GEOL 4403 or equivalent and GEOL 3034 or equivalent.
Description: Examination of the behavior of various trace elements in aqueous and sedimentary environments. Availability and mobility of trace elements, characterization of geochemical environments, and application to geologic problems.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5243 Research Methods and Techniques in Geosciences
Description: Application of the scientific method to geosciences research; introduction to library and internet searches; writing competitive research proposals; managing research activities; and disseminating research results.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5253 Petrology and Diagenesis of Clastic Rocks
Prerequisites: GEOL 3034.
Description: Examination of petrology and depositional facies of sandstones and shales. Identification of detrital and diagenetic constituents and determination of paragenetic sequence of diagenetic events. The effect of burial and thermal history on reservoir quality. Field trips required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5273 Depositional Systems
Prerequisites: GEOL 3034, GEOL 3546.
Description: Examination of the processes within depositional environments and the facies they form. Focus on the environmental interpretation of rocks, cores and seismic profiles based on their composition, texture, character, stacking pattern and sedimentary structures. Emphasis on clastic systems. Field trips required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5283 Subsurface Geologic Methods
Prerequisites: GEOL 3014, GEOL 3034.
Description: Use of subsurface geologic information from cores and well logs to prepare maps and identify oil and gas prospects. Field trips required.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5300 Geology Colloquium
Prerequisites: Graduate standing.
Description: Discussion of selected topics in the geological sciences with emphasis on professional presentation practices. Offered for fixed 1 credit hour, maximum of 2 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Geology

GEOL 5313 Plate Tectonics
Prerequisites: GEOL 3014 with a grade of "C" or higher.
Description: Study of the Earth's past and present tectonic environments within the framework of plate tectonics. Systematic examination of structural associations in relation to their spatial distributions around and within plate boundaries. Outlining the temporal evolution of the crust. Discussion on mechanisms for plate tectonics. Implication of plate tectonics in terms of resources and the environment. May not be used for degree credit with GEOL 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5333 Applied Geostatistics
Prerequisites: MATH 2144 with a grade of "C" or higher.
Description: Application of geostatistical principles and tools to solve geology problems associated with the uncertainty and spatial variability of geological data. The focus is on petroleum and hydrological systems. May not be used for degree credit with GEOL 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5343 Advanced Petrophysics
Prerequisites: Minimum grade of "C" in PHYS 2014.
Description: Provides theoretical background on physical, chemical, and electrical principles involved in routine core analysis (RCA) and special core analysis (SCAL) generic data acquisition, as well as practical experience in applying computational methods to infer petrophysical properties of rocks from RCA and SCAL data. May not be used for degree credit with GEOL 4343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5353 Advanced Well Log Analysis
Prerequisites: GEOL 3034 or consent of instructor.
Description: This course is for geology graduate students interested in the petroleum and environmental industries, geothermal energy and evaluating the subsurface environment using wireline logs. This course will focus on the geologic interpretation of a variety of well logs, as well as quantitative methods to determine porosity and permeability in aquifers and reservoirs, how reservoir fluids influence well log properties, calculating water saturation, and an introduction to unconventional reservoirs. Graduate students are given advanced homework exercises including interpretation of structure, selection of best logging technique, mineral identification, and fractured rock identification. Some exercises involve concurrent interpretation of well logs and core samples. No credit for students with credit in GEOL 4313 or GEOL 4323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5363 Carbonate Depositional Systems
Prerequisites: GEOL 3034 with a grade of "C" or higher.
Description: Survey course of the main types of carbonate sediments and depositional environments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology
Additional Fees: GEOL 5363 Field Trip fee of $242 and GEOL 5363 Consumable fee of $35 apply.

GEOL 5383 Sequence Stratigraphy
Prerequisites: GEOL 3034.
Description: Principles of sequence stratigraphy including carbonate and siliciclastic dominated intracratonic basins. Integration of surface and subsurface data in projects. Field trips required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5393 Stratigraphy of the Midcontinent
Prerequisites: GEOL 3034 with a grade of "C" or higher.
Description: This course will examine Paleozoic stratigraphy of the North American Midcontinent consisting of Texas, Oklahoma, Kansas, Nebraska, Missouri, and northwestern Arkansas. The course will consist of lectures, student presentations, and extensive field work that will serve to familiarize the students with the surface and subsurface relationships of geologic formation and their potential for commercial exploitation for oil and gas resources.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5403 Environmental Geochemistry
Prerequisites: Graduate Standing required.
Description: This course is designed to help students comprehend the major chemical components of natural environments and to apply fundamental principles to understand the main controls on the chemistry of pristine and polluted soil, surface, and ground water environments. May not be used for degree credit with GEOL 4403.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5413 Applied Petroleum Geology for Engineers
Description: This course introduces graduate level engineering students to the fundamental concepts of geologic science with emphasis on application to reservoir evaluation, drilling and production of hydrocarbon accumulation. Weekly labs provide hands-on exercises of techniques used for reservoir evaluation. A term project allows graduate students to synthesize concepts from lectures and techniques learned in lab, to evaluate the economic potential of an oil field and prepare a professional presentation. May not be used for degree credit with GEOL 3413.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5423 Groundwater Geochemistry
Prerequisites: CHEM 1314 and MATH 2144.
Description: Provides, theoretical background to apply geochemical principles to understand and solve groundwater quality problems, as well as practical experience in applying computational methodologies and tools to predict the response of groundwater systems to natural and anthropogenic disturbances. May not be used for degree credit with GEOL 4423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5433 Isotope Geochemistry
Description: Introduction to the basic principles of stable isotope geochemistry. Study of the production, distribution, and use of naturally occurring and anthropogenically introduced stable isotopes in the earth's near surface environment with applications to hydrology, biogeochemistry, global change and petroleum systems.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5443 Environmental Geophysics
Description: This course addresses environmental and engineering geophysical applications to geological characterization in (1`) groundwater, aquifer delineation and contaminant migration, (2) slope stability and engineering site characterization, (3) detection of abandoned landfills, underground storage tanks, UXO, (4) earthquake, sinkholes, and land subsidence hazards, and/or (5) non-invasive archeological site assessment. Students will gain hands-on experiences in both collecting geophysical data in the field and processing real field data in the lab. Field trips required. May not be used for degree credit with GEOL 4443.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5453 Groundwater Modeling
Prerequisites: GEOL 4453 or equivalent, MATH 2144, MATH 2153 each with a grade of "C" or higher.
Description: Modeling ground water systems. Realistic problems to acquaint students with the movement of geological fluids. Developing models of fluid movement through the subsurface using geological and geophysical data. Field trips required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5463 Physical Hydrogeology
Prerequisites: GEOL 4453 or equivalent with a grade of C or better; PHYS 2114 with a grade of C or better.
Description: Physical ground-water systems. Realistic problems to acquaint students with ground-water occurrence and movement. Geologic, geophysical, hydraulic testing and modeling techniques used to define an actual ground-water system. Ground-water regulations. Field trips required. May not be used for degree credit with GEOL 4463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5483 Petroleum Water Management
Prerequisites: Minimum grade of "C" in GEOL 4453 and MATH 2153, or consent of instructor.
Description: Developing, maintaining, and disposing or recycling water for use in the petroleum industry. Problems associated with water production and disposal including water quality issues and seismicity. Field trips required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5513 Marine Geology
Prerequisites: Minimum grade of "C" in: GEOL 1014 or GEOL 1114 or GEOL 1214 or GEOL 4503.
Description: Comprehensive examination of the geology of the ocean basins. Topics include: techniques of data collection and interpretation; shoreline, shelf and deep ocean processes; physical oceanography; origin and distribution of marine sediments; paleoceanography; marine mineral resources; marine tectonics and ocean history. Same course as GEOL 4513. May not be used for degree credit with GEOL 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5523 Environmental Organic Geochemistry
Prerequisites: CHEM 1314 and 1515 or equivalent; GEOL 3034 or equivalent; GEOL 4403 or equivalent or permission of instructor.
Description: Introduction to some environmental aspects of organic geochemistry. Soils and sediments as pollutant receptors, sources of pollutants and selected aspects of environmental health.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5533 Organic Geochemistry
Description: Introduction and broad overview of the biogeochemistry of organic compounds in geological systems, including sediments, water, and paleoenvironments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5543 Introduction to Exploration Seismology
Description: Introduction to theory, techniques, and application of seismic to field of hydrocarbon, groundwater, and minerals exploration. Review of fundamentals of wave propagation, historical development of the science, and current literature on application and instrumentation. No credit for students with credit in GEOL 4543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5573 Marine Biogeochemical Cycles
Prerequisites: GEOL 1224 and GEOL 4403 and CHEM 1314.
Description: Analysis of the interactions between geological processes, biological activity, and chemical cycling for a range of elements. Limited discussion of atmospheric, terrestrial, and freshwater systems as they impact the oceans will also be discussed. Includes discussions of changes in elemental cycles through Earth's history and comparison to present-day patterns. No credit for credit in GEOL 4573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5583 Environmental Data Analytics
Prerequisites: Minimum grade of "C" in MATH 2144.
Description: Provides theoretical and practical experience in extracting meaning from complex and heterogeneous environmental data sources to understand and manage the natural environment (geosphere, hydrosphere, biosphere, and atmosphere). May not be used for degree credit with GEOL 4583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5603 Basin Evolution
Prerequisites: GEOL 3014, GEOL 3034, GEOL 4403.
Description: Advanced topics in sedimentary basin studies, including tectonics, sequence stratigraphy, facies analysis, regional diagenesis, thermal evolution, regional hydrogeology, and distribution of natural resources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology
Additional Fees: GEOL 5603 Field Trip fee of $50 applies.

GEOL 5633 Exploration Prospect Evaluation
Prerequisites: Graduate standing and permission of the instructor.
Description: Evaluation of exploration prospects in frontier and underdeveloped petroleum provinces using borehole-derived and geophysical data. Team taught course that uses industry provided datasets and current data management and interpretation software to reach drill or no-drill decisions based on science, risk analysis and economics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5643 Seismic Data Processing
Prerequisites: Consent of instructor.
Description: Theoretical background and practical training in the processing of seismic reflection and refraction data for petroleum, environmental, and engineering applications. Hands-on digital data processing using standard industry software. Topics to be covered include digital filtering, statics corrections, velocity analysis, deconvolution, stacking, and migration. May not be used for degree credit with GEOL 4643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5753 Volcanology
Prerequisites: GEOL 2464 or equivalent with a grade of "C" or higher.
Description: Examination of volcanic processes, products, and structures on Earth and other terrestrial bodies. Optional field trip. No credit for students with credit in GEOL 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5773 Planetary Geology
Prerequisites: GEOL 1114, and GEOL 3073 recommended.
Description: Geology of planets and planetary bodies, including geomorphology, tectonics, geochemistry and geophysics; perspectives on exploration; and life in the universe. Course previously offered as GEOL 4773.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 5803 Fundamentals of Carbon Capture and Geologic Storage
Prerequisites: Admission to the Geoscience PSM or instructor permission.
Description: This course covers the fundamentals of carbon capture and storage and includes and introduction and summary of storage and capture technology, the CO2 sources that are suited to this technology, and economic and policy drivers. The course considers the full spectrum of geological opportunities for CO2 storage and CO2-enhanced oil and gas recovery, as well as basic operational design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5813 Multiphase Flow and Transport of CO2 in Subsurface
Prerequisites: Admission to the Geoscience PSM or instructor permission.
Description: This course covers several aspects of CO2 transport in the subsurface and evaluates the safe storage of CO2 plumes. It explores in detail the challenges of geological storage. Topics to be covered include, but are not limited to plume migration, leakage risk, CO2 dissolution into the aqueous phase, capillary-entrapped CO2, and potential for in-situ CO2 mineralization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5823 Fundamentals of Water-Rock-CO2 Interactions
Prerequisites: Admission to the Geoscience PSM or instructor permission.
Description: This course covers the fundamentals of water-rock-CO2 interactions and will provide a combination of theoretical background, numerical modeling, and case studies from several pilot and commercial projects. The course will highlight the challenges of data collection from the field and from available datasets.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5833 Geomechanics and Seismicity in Geological Carbon Storage
Prerequisites: Admission to the Geoscience PSM or instructor permission.
Description: This course covers the scientific fundamentals of seismology and geomechanics for a broad understanding of induced seismicity. Course covers a broad background on the fundamentals of geophysics and geology, specifically how stress in the earth interacts with faults and fractures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5843 4D Dynamic Reservoir Characterization
Prerequisites: Admission to the Geoscience PSM or instructor permission.
Description: This course will utilize case studies to introduce participants to the art of interpreting time-lapse (4-D) multicomponent (9-C) seismic in terms of dynamic changes in rock properties. The modeling and interpretation techniques taught in this course can be applied to any porous subsurface system where fluid injection or extraction processes cause changes in the elastic subsurface rock properties. Knowledge gained can be transferred to examine systems such as carbon storage, geothermal, wastewater disposal, and heavy oil extraction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5853 Social, Legal, and Regulatory Context for Carbon Capture and Storage
Prerequisites: Admission to the Geoscience PSM or instructor permission.
Description: This course will provide an overview of the social, legal, and regulatory context for participants to navigate aspects of carbon capture and storage (CCS) and energy transition projects. Using case histories, guest speakers, and experiential learning, this course introduces participants to the landscape in which project developers, regulators, policymakers, and industry providers will be expected to operate in to engage in Energy Transition projects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5863 3D Seismic Exploration
Prerequisites: Admission to the Geoscience PSM or instructor permission.
Description: Students will learn how to use principles of seismic stratigraphy, seismic geomorphology, structural geology, and rock physics to interpret seismic reflection data and associated attributes to delineate faults, fractures, folds, fluvial-deltaic complexes, turbidites, mass transport complexes, karst, and other structural and stratigraphic features of interest. Course is intended for graduate students in geosciences or petroleum engineering.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5883 Risk Analysis in Conventional and Unconventional Reservoirs
Prerequisites: Admission to the Geoscience PSM or instructor permission.
Description: The course will review several conventional and recent unconventional discoveries with an emphasis on the technical geologic and engineering variables. The geologic emphasis of each play will focus on basin development, petroleum systems, super-basin concepts, and as analogs for future exploration and development in these and other innovations. Economic, financial, and oil & gas industry portfolio evaluation will be introduced.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5893 Evolution of Sandstone Reservoirs
Prerequisites: GEOL 3034 and 3014.
Description: Sandstones and sands form major oil and gas reservoirs and critical aquifers. This course examines coarser siliciclastic bodies and follows their evolution from sediment to rock. Topics investigated include depositional settings and environments, distribution and geometry of sand bodies and the role of biotic activity and diagenesis in enhancing or reducing reservoir quality.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 5981 Geoscience Internship
Prerequisites: Consent of instructor.
Description: Student participation in a research project during an internship in a Geoscience-related professional work setting for graduate credit. Graded on a pass/fail basis.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Geology

GEOL 5990 Advanced Studies in Geology
Prerequisites: Consent of instructor.
Description: Individual library, laboratory and/or field projects on facets of geology not covered by existing courses. Field trips may be required. Course previously offered as GEOL 5710. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Geology

GEOL 6000 Doctoral Dissertation Research
Description: Work toward doctoral dissertation in Geology. Offered for variable credit, 1-12 credit hours, maximum of 60 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Geology

GEOL 6103 Gravity and Magnetic Methods
Prerequisites: GEOL 4103.
Description: Principles of gravity and magnetic methods applied to petroleum, mineral, and groundwater exploration. Engineering applications will also be discussed. Data acquisition, processing and modeling using standard industry software will be emphasized.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 6133 Unconventional Petroleum Reservoirs
Prerequisites: GEOL 4023.
Description: Review of unconventional sources of oil and gas production including coalbed methane, tight gas-sandstones, gas and oil-bearing shales and transition zone, high-water saturation sandstones and carbonates.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 6213 Plate Tectonics
Description: Earth's evolution within the framework of plate tectonics. Examination of structural associations in relation to tectonic plate boundaries. Mechanisms for place tectonics and implication for resources and the environment. May not be used for degree credit with GEOL 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 6283 Geology of Shales
Prerequisites: Graduate standing or permission of instructor.
Description: Team-taught course that combines different geological techniques towards gaining a better understanding of shales as source and reservoir rock. These include petrography, XRD, SEM, Organic and Inorganic chemistry, geophysical logs, paleoecology and biostratigraphy. This course will involve lecture as well as laboratory techniques.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 6303 Electrical and Electromagnetic Methods
Prerequisites: GEOL 4103.
Description: Principles of the different geoelectrical methods, including electrical resistivity, induced polarization, self potential, electromagnetic, and ground penetrating radar will be emphasized. Geophysical instrumentation, laboratory measurements of physical properties, field procedures, and basic interpretation and near surface geophysical applications will be discussed. Recent advances in geoelectrical methods and case studies will be examined by reviewing current literature. Field trip required.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology
Additional Fees: GEOL 6303 Field Trip fee of $30 applies.

GEOL 6363 Carbonate Reservoir Characterization
Prerequisites: GEOL 5363 or Admission to the Geoscience PSM or instructor permission.
Description: A review of depositional and diagenetic controls on carbonate reservoir heterogeneity from pore scale to the geometrical attributes at reservoir-scale and how these parameters can be incorporated into the development of viable petrophysically-based reservoir models. In-class readings and exercises are used to reinforce the potential integration of petrophysical, geological and other data sets to provide students with experience in carbonate reservoir characterization for oil and gas, groundwater and CCUS reservoirs. This is a seminar and project-based course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 6373 Advanced Carbonate Petrology and Geochemistry
Prerequisites: GEOL 4403 with a grade of "C" or higher and GEOL 5363 with a grade of "B" or higher or equivalents or consent of instructor.
Description: This course will cover advanced topics in carbonate petrology and geochemistry with emphasis on both early and late diagenetic processes, dolomitization, porosity and permeability, geochemical evolution of seawater and carbonate sediments, and regional diagenetic patterns in carbonate rocks and related strata.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 6386 Sequence Stratigraphy of Shales
Prerequisites: Graduate standing. Intensive field course focusing on hydrocarbon-bearing shales of the Midcontinent.
Description: Advanced field techniques including high resolution spectral gamma ray analysis and highly detailed measured sections will be taught. Fifty localities including Devonian-Early Mississippian (Woodford and Chattanooga shales), Upper Mississippian (Barnett, Caney, and Fayetteville shales) and Pennsylvanian-Lower Permian shales will be analyzed.
Credit hours: 6
Contact hours: Lecture: 2 Lab: 12 Contact: 14
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

GEOL 6503 Rock Fractures
Description: Mechanical analysis and tectonic implications of brittle structural features such as joins, veins, and faults. Examination of topics such as mechanical stratigraphy in layered rocks, factors controlling joint spacing, and the dependence of failure mode on lithology. Field trips may be required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Geology

GEOL 6553 Contaminant Hydrogeology
Prerequisites: GEOL 4453 or an equivalent.
Description: Contaminant Hydrogeology will evaluate characterization and remediation approaches in a range of geologic settings for common subsurface impacts. Course will cover saline impacts, nonaqueous phase liquids, and emerging contaminants. Course previously offered as GEOL 5553.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geology

German (GRMN)

GRMN 1713 Elementary German I (F)
Description: Main elements of grammar and pronunciation, with work on the four basic skills of listening comprehension, speaking, reading and writing. Not for native speakers per University Academic Regulation 4.9. Previously offered as GRMN 1115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 1813 Elementary German II (F)
Prerequisites: GRMN 1713 or equivalent proficiency.
Description: Continuation of GRMN 1713. Not for native speakers per University Academic Regulation 4.9. Previously offered as GRMN 1225.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 2713 Intermediate German (FG)
Prerequisites: GRMN 1813 or equivalent proficiency.
Description: Continuation of GRMN 1813. Not for native speakers per University Academic Regulation 4.9. Previously offered as GRMN 2112.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: International Dimension

GRMN 2723 Intermediate German Skills I
Prerequisites: GRMN 1813 or equivalent proficiency.
Description: Review and expansion of German listening comprehension, speaking, reading, and writing. Not for native speakers per University Academic Regulation 4.9. Previously offered as GRMN 2113. Can be taken concurrently with GRMN 2713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 2813 Reading and Conversation II
Prerequisites: GRMN 1813 or equivalent proficiency.
Description: Reading/viewing and analysis of prose, drama and poetry, and film for building literary and cultural appreciation. May be taken concurrently with other 2000-level German courses. Not for native speakers per University Academic Regulation 4.9. Previously offered as GRMN 2223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 2823 Intermediate German Skills II (G)
Prerequisites: GRMN 2713 or equivalent proficiency.
Description: Listening comprehension, speaking, reading, and writing. Not for native speakers per University Academic Regulation 4.9. Previously offered as GRMN 2222.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: International Dimension

GRMN 2890 Honors Experience in German
Prerequisites: Honors Program participation and concurrent enrollment in a designated German course.
Description: A supplemental Honors experience in German to partner concurrently with designated German courses. This course adds a different intellectual dimension to the designated courses. Offered for fixed credit, 1 credit hour.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Honors Credit

GRMN 3013 German for Reading Requirements I
Description: Reading in the humanities and the sciences. Translation from German to English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 3023 German for Reading Requirements II
Prerequisites: GRMN 3013 or equivalent.
Description: Intermediate and advanced reading in the humanities and sciences. Translation from German to English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 3343 Business German
Prerequisites: 12 hours of German or equivalent proficiency.
Description: Business concepts, practices and the expectations of professional life in Germany. Focus on specialized vocabulary and business correspondence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 3463 Advanced Diction and Phonetics
Prerequisites: 12 credit hours of German or equivalent proficiency.
Description: German speech sounds and intonation patterns. Practice to improve the student's pronunciation. Required course for teacher certification.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 3501 Orientation to Internship Abroad
Prerequisites: 15 hours of German or equivalent proficiency.
Description: Preparation for residential internship in a German speaking country. Culture, civilization, and contemporary conditions, and communication for students accepted for international cooperative education program. Previously offered as GRMN 3902.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 3502 Internship Abroad
Prerequisites: 15 hours of German or equivalent proficiency.
Description: Practical studies in a German-speaking country. Supervised research papers and reports and oral testing during and following the practicum. Previously offered as GRMN 3903.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 3803 Advanced Conversation Skills
Prerequisites: 12 hours of German or equivalent proficiency.
Description: Colloquial speech forms and sentence structure. Practice in brief public address in German.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 3813 Advanced Writing Skills
Prerequisites: 12 hours of German or equivalent proficiency.
Description: Practice in original composition in German. Problematic points of German grammar and stylistics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 4153 Survey of German Literature I
Prerequisites: 15 hours of German or equivalent proficiency.
Description: German literature from the beginning to 1785.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 4163 Survey of German Literature II
Prerequisites: 15 hours of German or equivalent proficiency.
Description: German literature from 1785 to the present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 4333 Backgrounds of Modern German Civilization
Prerequisites: 15 hours of German or equivalent proficiency.
Description: Historical, cultural, political and literary trends in the formation of German civilization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 4343 Modern Germany
Prerequisites: 15 hours of German or equivalent proficiency.
Description: The major cultural, social and political forces that have shaped the Germany of today. Previously offered as GRMN 3333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 4513 The Age of Goethe
Prerequisites: 15 hours of German or equivalent proficiency.
Description: Principal figures of German Classicism and Romanticism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 4523 19th Century German Literature and Culture
Prerequisites: 15 hours of German or equivalent proficiency.
Description: Major works and figures in 19th-century literature, art, history, and culture in the German-speaking lands.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 4533 20th Century German Literature and Culture
Prerequisites: 15 credit hours of German or equivalent proficiency.
Description: Major works and figures in 20th-century literature, art, history, and culture in the German-speaking lands.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 4543 Contemporary German Literature and Culture
Prerequisites: 15 hours of German or equivalent proficiency.
Description: Major works and figures in contemporary literature, art, history, and culture in the German-speaking lands.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GRMN 4550 Special Topics in German
Prerequisites: 18 credit hours of German or equivalent proficiency.
Description: Reading and discussion of vital subjects in German. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

GRMN 4650 Topics in German
Prerequisites: One 3000-level German course, or equivalent.
Description: In-depth study of a specific aspect of German literature, culture or language.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

Gifted and Talented Education (GTED)

GTED 5063 Introduction to Gifted and Talented Education
Description: Concepts, techniques, and strategies for providing differentiated educational programs and experiences for the gifted and talented. State and Federal legislation; development of gifts and talents; program types; identification systems; program development; materials development; teaching techniques and methodologies. Previously offered as EPSY 5063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

GTED 5163 Counseling Techniques for Teachers of Gifted and Talented Students
Description: Techniques for dealing with the conflicts experienced by gifted and talented students. Strategies for consulting with teachers, peers, and parents regarding optimal development of gifted. Peer counseling techniques, dealing with self-concept, social and emotional concerns, problem solving and decision making, referral procedures and self-analysis for teachers related to learning and teaching philosophy and style. Previously offered as EPSY 5163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

GTED 5363 Differentiating Curriculum for Gifted Learners
Description: Development of curriculum for horizontal and vertical expansion and acceleration. Commercial and teacher prepared materials in imagination; imagery; analogy; metaphor; inductive, deductive and abductive thinking; sciencing; philosophy; logic systems; problem solving; psychology; concept learning; creativity; creative dramatics, etc. Conceptual approaches to the use of the preceding in various interest based and non-interest based curricular formats. Previously offered as EPSY 5363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

GTED 5620 Practicum with Exceptional Learners
Description: Supervised individual and group experience with exceptional learners. The particular experience (learning disability, mental retardation, gifted, etc.) is determined by the student's field of specialization. Previously offered as EPSY 5620. Offered for variable credit, 1-6 credit hours, maximum of 8 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

GTED 5763 Teaching Methods and Techniques for Gifted Education
Description: Development of curriculum for horizontal and vertical expansion and acceleration. Commercial and teacher prepared materials in imagination; imagery, analogy, metaphor; inductive, deductive and abductive thinking; sciencing; philosophy; logic systems; problem solving; psychology; concept learning; creativity; creative dramatics, etc. Conceptual approaches to the use of the preceding in various interest based and non-interest based curricular formats. Previously offered as EPSY 5763.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

GTED 5863 Developing Programs for the Gifted and Talented
Description: Programs based on various philosophies and structural concepts of gifted and talented education, e.g., inclusion, self-contained, pullouts, magnet schools, time blocking, acceleration and enrichment. Programs designed for general and specific academic ability; however, exposure will be provided to creative and productive thinking programs, leadership programs, and visual and performing arts programs. Specific models included. Previously offered as EPSY 5863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

GTED 5993 Identification and Behavioral Characteristics of the Gifted and Talented
Description: Cognitive, affective, and behavioral characteristics of the gifted and talented. Selections of tests and interest inventories. Selection and/or developing of nomination/recommendation forms/models, inventories, checklists, rating scales, sociograms as well as data abstraction from cumulative and anecdotal records. Functions of gifted/talented identification committees. Previously offered as EPSY 5993.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

Global Health (GLHE)

GLHE 5020 Seminar in Global Health
Description: Selected topics, problems and issues in global health. Same course as HCA 5020. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5030 Problems and Issues in Global Health
Description: In-depth exploration of contemporary problems in global health. Same course as HCA 5030. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5052 Directed Readings in Global Health
Description: Focuses on specific topics of interest and emphasis in health care administration. Topics will be chosen or assigned for focused literature review. Same course as HCA 5052.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5103 Introduction to Global Health
Description: Highlights the chronic, emerging and re-emerging global health issues and examines possible measures to address them. Same course as HCA 5103. May not be used for degree credit with HCA 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5123 Survey of Research and Evaluation in Health Care
Description: Introduces the basic understanding of research and evaluation in healthcare. Students develop an understanding of research projects, including human subject research in both hospital and clinical settings. May not be used for degree credit with HCA 4123. Same course as HCA 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5143 Relief and Development in Global Health
Description: Explores the roles and interaction of intergovernmental and governmental agencies and NGOs involved in global health. Same course as HCA 5143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5153 International Health Systems
Description: Provides an overview of the differences in global health care systems using a historical and socio-political context making extensive use of country case studies. Same course as HCA 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5173 Emerging Global Infectious Diseases
Description: Develops a realistic approach to addressing emerging global infectious diseases, emphasizing global health implications in the areas of prevention, surveillance, and control. Same course as HCA 5173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5183 Global Environmental and Occupational Health
Description: Examines environmental health concerns in the context of public health, and the social, economic and other factors that mitigate the effects of environmental hazards or otherwise influence the population. Same course as HCA 5183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5193 Health Aspects of Disasters
Description: Addresses important thematic areas such as types, phases and effects of disasters on health, public health and medical responses of infectious diseases and pandemics. Same course as HCA 5193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

GLHE 5273 Understanding Global Burden of Diseases
Description: Provides an overview of methods used for studying the global burden of diseases. Develops an understanding of how to use these methods to assess major trends for future forecasting. Same course as HCA 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

Global Studies (GLST)

GLST 1713 Regions & Nations in Global Context (GS)
Description: A regional approach to the study of human societies and the makeup of nations around the world, with an emphasis on contemporary issues such as climate change, sustainability and other environmental impacts; population and immigration; culture, religion and language; and economic characteristics such as wealth disparities, poverty and education. This course covers many distinct world regions such as Europe, Latin America, the Middle East and Southeast Asia. Same course as GEOG 1713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 2002 Global Sustainability (N)
Description: This course examines questions of sustainability and sustainable development in a global context from environmental, social, and economic perspectives. Emphasis is placed on how different dimensions of sustainability interact, and how those interactions are shaped by regional context in a globalized world. Through discussion of policy and current environmental issues around the world, students will learn to analyze relationships and tradeoffs between humans and their environment. Same course as GEOG 2002.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Natural Science Reasoning

GLST 2103 Global Perspectives (GS)
Description: Introduces students to the cultural, economic, and political aspects of globalization and global issues. Emphasizes the relationship between tradition and change, the interconnectedness of people, places, and institutions, aspects of social and economic development, and the evolving role of technology in creating and sustaining a globalized world. Also introduces students to possible career options. Same course as GEOG 2103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 3053 Introduction to Central Asia Studies (GS)
Description: A comprehensive view of newly-emerged Central Asian states, examining the history, politics, economics, geography, and culture of Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan as reflected in their thoughts, religion, literature, and architecture in the past, and the strategic importance of their natural wealth for the present and future. Same course as GEOG 3053, HIST 3053, POLS 3053, and RUSS 3053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 3113 Global Water Resources: Sustainability & Justice
Description: Water resources are key to the success of societies in all of their various forms. This course introduces students to fundamental concepts of water resources, including the natural processes of the hydrological cycle, management of water resources, and societal threats to sustaining water quantity and quality. Students in this course will develop an awareness and appreciation of the multiple perspectives about water as a precious resource, commodity, and point of justice. Same course as GEOG 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Geography

GLST 3713 Exploring North America and Diversity (DS)
Description: This course presents a regional analysis of the United States and Canada, including physical and cultural landscapes, population and migration trends, regional development, natural resources, and U.S.-Canada relations as well as global relations. In addition, it emphasizes diversity in both countries, with special attention to those geographies of under-represented and minority groups in the U.S. Same course as GEOG 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: Diversity, Society & Human Behavior

GLST 3723 Europe (GS)
Description: This course examines the cultural, economic, and natural diversity of Europe in relation to globalization, climate change, and popular culture. Basic geographic concepts such as migration, region, and culture will be linked to European current events. Students will learn to properly utilize online sources to understand current European issues and their relationship to other countries and regions around the world. Same course as GEOG 3723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 3733 Russia and Its Neighbors (GS)
Description: A regional survey course of Eurasia extending from Central Europe to Western Siberia. Central and Southwest Asia will not be considered in this course. Thematic contemporary issues in the region will be covered, including topics on culture, politics, social issues, economic development, and others. Same course as GEOG 3733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 3743 Latin America (GS)
Description: A regional analysis of physical, cultural and economic features of historic and contemporary Latin America. Key themes include people and environment, development and change, government and conflict, and globalization and social change. Same course as GEOG 3743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 3753 Asia (GS)
Description: A regional survey course of Asia from Pakistan in the west to the Asian littoral in the east, including Japan, Taiwan, and the Philippines. Central and Southwest Asia will not be considered in this course. Regionally, Asia will be approached through examination of two great cultural focal points: India and China. Thematic contemporary issues in Asia will be covered, including topics on culture, politics, social issues, economic development, and others. Same course as GEOG 3753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 3763 Africa (GS)
Description: An exploration of the patterns and impact of population, cultural heritage, and natural resources to build an understanding and experience with Africa. Historic and contemporary relationships between Africa and Western civilization. Key themes include traditions and lifeways, development and change, government and conflict, and people and environment. Same course as GEOG 3763.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 3783 The Middle East (GS)
Description: A regional analysis of the Arab, Persian and Turkic lands that builds an understanding and experience with the Middle East. Historic and contemporary patterns highlight both tradition and modernity. Key themes include lifeways and social change, development and globalization, international relations and conflict, and natural resources and environment. Same course as GEOG 3783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 3793 Australia and the Pacific Realm (GS)
Description: Study of Australia, New Zealand, and the island regions of Micronesia, Melanesia, and Polynesia. Course examines the cultural and natural diversity of these regions in relation to globalization, climate change, and popular culture. Course covers enduring cultural traditions, legacies of external involvement, changing livelihoods and landscapes, and the region's role in global affairs. Same course as GEOG 3793.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography
General Education and other Course Attributes: International Dimension, Society & Human Behavior

GLST 4443 Sustainable Tourism and Geography
Prerequisites: Junior or senior standing or consent of instructor.
Description: This course examines sustainable tourism from a cultural and environmental perspective. It discusses concepts and theories of sustainability and tourism, including human rights, environmental justice, and ethics, emphasizing the global environmental and social effects and possibilities of tourism. The course addresses management concepts, sectoral approaches, transport and mobility themes, and emerging issues in the context of sustainability. May not be used for degree credit with GEOG 4443 and HRAD 4183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

GLST 4513 Senior Capstone Experience
Prerequisites: Consent of the instructor and advisor.
Description: Designed specifically for Global Studies majors. Reviews key literature, relates coursework in the major to career plans, and culminates in a research project. Students design and execute a research project and give an oral presentation based on their project and experience.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Geography

Global Studies (GS)

GS 2013 UN Sustainable Development Goals (G)
Description: This course examines current issues and problems facing the globe and introduces students to the historical, geopolitical and cultural aspects surrounding these issues. The course is structured around the UN Sustainable Development Goals (UN SDGs), which are a universal call to action that unite the world in addressing some of the world's most complex issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Global Studies
General Education and other Course Attributes: International Dimension

GS 4020 Independent Study
Prerequisites: Instructor Permission.
Description: Directed study in student's area of interest. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours. Previously offered as INTL 4020.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Global Studies

GS 4070 Special Topics in International Studies
Description: Selected topics in Global Studies. Course content varies by semester. Possible course topics include, International Business and Trade, Public Diplomacy, International Communications, International Development and Leadership, Global Crisis Response and Management. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. May not be used for degree credit with GS 5070.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Global Studies

GS 4110 Internship in Global Studies
Prerequisites: Instructor Permission.
Description: Internship in Global Studies. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours. Previously offered as INTL 4110.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Global Studies
Additional Fees: OSUGS Outreach Course Tuition fee of $1 applies.

GS 4200 Study Abroad
Prerequisites: Consent of instructor and consent of SGSP Director of Academic Programs.
Description: Academic work abroad on either a group or individual basis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Previously offered as INTL 4200. May not be offered for degree credit with GS 5200.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Global Studies

GS 5000 Master's Thesis
Prerequisites: Graduate standing and consent of advisor.
Description: For students studying for a master's degree in global studies under the thesis option. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Previously offered as INTL 5000.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Global Studies

GS 5013 Contemporary Issues in Global Studies
Prerequisites: Enrollment in MS program in Global Studies or enrollment in an OSU graduate program and consent of instructor.
Description: Examination of major transnational issues and associated problems of international cooperation, including ethnic conflicts, environmental degradation, global standards for human rights, and economic globalization. Previously offered as INTL 5010 and INTL 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5020 Independent Study
Prerequisites: Consent of supervising faculty member.
Description: Readings and directed study in student's focus area. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Previously offered as INTL 5020.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Global Studies

GS 5043 Politics of the Global Economy
Prerequisites: Graduate standing.
Description: Theory and practice of international political economics. The patterns and associations between political and market-based processes among nation states. Emphasis on interactions among advanced industrial states, transnational phenomena, and opportunities and pitfalls in north-south relations. Same course as POLS 4043. Previously offered as INTL 5213 and INTL 5043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5070 Special Topics in Global Studies
Prerequisites: Graduate standing.
Description: Selected topics in Global Studies. Course content varies by semester. Possible course topics include, International Business and Trade, Public Diplomacy, International Communications, International Development and Leadership, Global Crisis Response and Management. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. May not be used for degree credit with GS 4070.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5090 Study Abroad
Prerequisites: Graduate student standing, Consent of the Study Abroad office and associate dean of the college.
Description: Participation in an OSU reciprocal exchange program. Offered for variable credit, 1-12 credit hours, maximum of 24 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Global Studies

GS 5100 Research in Global Studies
Prerequisites: Graduate standing.
Description: Individually supervised research on topic within the student's focus area for the Global Studies Program. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours. Previously offered as INTL 5100.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Global Studies

GS 5110 Internship in Global Studies
Prerequisites: Graduate standing and consent of Director.
Description: Individually supervised internships in international career areas. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Previously offered as INTL 5110.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Global Studies

GS 5133 Research Design and Methods for Global Studies
Prerequisites: Graduate standing.
Description: This course is designed to provide graduate students with training in how to design and complete an independent research project in Global Studies. This includes formulation of a research question or topic, conducting a literature review, planning the logistics of research, writing in a scholarly fashion, and seeking to publish the results.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5200 Study Abroad
Prerequisites: Graduate standing, consent of instructor, and consent of SGSP Director of Academic Programs.
Description: Academic work abroad on either a group or individual basis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Previously offered as INTL 5200. May not be offered for degree credit with GS 4200.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Global Studies

GS 5213 Global Trade Economics
Prerequisites: Honors College participation.
Description: This course presents an introduction to economic issues from a global perspective for the non-specialist. It emphasizes the problems and challenges the process of globalization poses to national economies. The first part of the course presents the main theories of international trade and their relevance to explaining current global trade patterns. The second part of the course examines the foreign exchange markets. It covers various international financial issues such as global current account imbalances, the role of the dollar in international financial markets and trade finance. Same course as ECON 5603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5223 Culture, History and World Systems
Prerequisites: Graduate standing.
Description: Study of the impact and influence of culture and history on the development of contemporary world systems with future projections. Same course as SOC 5223. Previously offered as INTL 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5233 Global Competitive Environment
Description: Development of a global business strategy for the organization. Issues of highly diversified markets and business environments, global competition, financial markets, and complex organizational relationships. Same course as MKTG 5233. Previously offered as INTL 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5243 Trade and Investment Promotion
Description: The purpose of this course is to help students develop an understanding of the factors and processes that shape global investment and trade promotion policies across all sectors of an economy. The course will delve into how various factors work together to influence a country's attraction as an investment destination and the policies used to retain and sustain foreign investments in host countries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5313 Global Communication and Public Diplomacy
Prerequisites: Graduate standing.
Description: Global media organizations have become players in international politics, and in how cultures define themselves. This course will explore a number of intersections of culture, media, and communication, with particular emphasis on the role of media and communication in public diplomacy. By examining the academic and popular literature on global media, international relations, and globalization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5323 Nation Branding
Prerequisites: Graduate standing.
Description: Nation branding is defined for this course as the strategic act of shaping a country's reputation and country image through the use of branding techniques. This course will explore America's image abroad and attempt to understand the recent rise of anti-Americanism, as well as look at nation branding in other countries. May not be used for degree credit with MC 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5333 Certified Global Business Professional
Description: This course deals with the practicalities of international trade. Topics include finding appropriate partners, international pricing, legal considerations, tax and accounting issues. International marketing and cultural issues are also addressed. The course is designed to prepare students to successfully complete certification as a Global Business Professional (CGBP certification). Previously offered as INTL 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5343 Geopolitics of New Media
Prerequisites: Graduate standing.
Description: Examines the geopolitical impact of new media, including satellite television, various digital and internet technologies, and social media by exploring the ways in which the advent and development of new media have shaped larger geopolitical currents. May not be used for degree credit with MC 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5413 Global Development
Prerequisites: Graduate standing.
Description: Examines effective principles and practices of international development and provides a thorough understanding of current issues in development by guiding students to an understanding of how development issues are being approached, what methodologies are effective, and how to use the tools of development. Same course as AGIN 5413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5443 Refugees & Forced Migration
Description: Millions of people in the world experience forced displacement from their homes due to intersecting factors like armed conflict, natural disasters, and persecution due to race, religion, nationality — among other threats to their safety and well-being. in this interdisciplinary and cross-regional course, students examine the intersecting legal, political, social, economic, and cultural dimensions of forced migration from the second half of the 20th century to today. Particular attention Is paid to the experiences of refugees, as well as to legal and policy approaches, humanitarian responses, and media and cultural representations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5513 Global Crisis Management
Prerequisites: Graduate standing.
Description: Provides graduate introduction to Global Crisis Management. Students will learn about topics ranging from emergency management, disaster management to crisis management on the global stage. This includes examining the global system for dealing with disasters and crises that cross international borders, and the agencies and organizations that respond.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5523 Transnational Criminal Organizations and the War on Drugs
Description: This course will offer an analysis of transnational organized crime and its impact on societies around the world. It will focus on drug trafficking, human trafficking, and arms dealing. It will also examine policy responses and their effectiveness.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5533 Complex Emergencies
Prerequisites: Graduate standing.
Description: This course examines complex emergencies from an emergency management perspective. We will look at the collapse of governance, the causes of armed conflict, food insecurity, infectious disease, natural disasters, and so on, and examine specific cases in detail. Furthermore, we will look at how the international community responds to these crises, and which agencies are involved in relief efforts. We will apply the traditional four phases of disaster management to these situations. This course is the same as FEMP 5613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5543 International Dimensions of Fire and Emergency Management
Prerequisites: Graduate standing.
Description: Examines disasters in an international context as well as the theory and practice of international disaster management. This course is the same as FEMP 6313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

GS 5553 Global Poverty and Inequality
Description: In this course, we will examine the root causes of poverty and inequality on a global scale. We will look at the micro-level, examining coping strategies of the poorest, as well as at the macro level, examining both rich and poor economies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Global Studies

Graduate (GRAD)

GRAD 5082 ITA Training - Oral Proficiency
Description: This course provides International Teaching Assistants (ITAs) with tools to identify features of spoken English that facilitate effective classroom communication and employ these features in their own spoken English, as well as other strategies to compensate for linguistic challenges. Students who receive a score of no pass on the ITA Exam must enroll in GRAD 5082. Individuals scoring 21 or below on the speaking section of the TOEFL iBT, or 6.5 or below on the speaking portion of the IELTS may also consider enrolling in GRAD 5082 to prepare for the ITA Exam. Previously offered as GRAD 5981.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Graduate College

GRAD 5092 ITA Training - Language in the American Classroom
Prerequisites: Graduate standing.
Description: This course provides International Teaching Assistants (ITAs) with linguistic, interactional, and compensatory tools (e.g. visual aids, body language) for effective language use and presentation in the American classroom. This course focuses especially on the linguistic expectations of the American classroom and on field-specific linguistic practices. Individuals who are assigned to instructional duties and who receive a provisional pass on the ITA Exam must enroll in GRAD 5092. Previously offered as GRAD 5991.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Graduate College

GRAD 5193 Preparing Publishable Manuscripts
Prerequisites: Students must have completed a minimum of 12 graduate-level credit hours.
Description: Preparing Publishable Thesis Chapters is intended for graduate students with original data collected, analyzed, and ready to report in refereed journals. Consideration of best practices for preparing manuscripts for submission or publication will be augmented with guidance that students will receive from their mentors. Themes of the class include commonalities and differences in research writing conventions among academic disciplines, gatekeepers' expectations about research submitted for publication, practical strategies for increasing the likelihood of favorable reviews from journal editors, and the contemporary roles of theses and dissertations. Students will be provided with a framework for research writing and publishing that they can further employ to advance within their fields of scholarship.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Graduate College

GRAD 5880 Graduate Traveling Scholar
Prerequisites: Consent of instructor.
Description: Credit will vary depending on the program of each traveling scholar. Enrollment of graduate traveling scholars in academic or research courses. Offered for variable credit, 1-24 credit hours, maximum of 24 credit hours.
Credit hours: 1-24
Contact hours: Contact: 1-24 Other: 1-24
Levels: Graduate
Schedule types: Independent Study
Department/School: Graduate College

GRAD 5891 Special Topics in Grantmanship
Prerequisites: Doctoral students only or instructor permission.
Description: Special topics on grantsmanship from a multi/interdisciplinary perspective to develop grant writing skills, funding opportunity identification and selection; planning a grant proposal; organization and development of proposal components; proposal reviewing. Previously offered as GRAD 5890.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Graduate College

GRAD 5990 Special Problems in Graduate Education
Prerequisites: Graduate standing, permission of instructor.
Description: Special problems course with variable content. Topics relevant to graduate education and interdisciplinary studies. Taken with instructor permission only. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Graduate College

GRAD 6001 Graduate Research Inspired Seminar Experience
Description: Development of skills for presenting interdisciplinary biomedical research to a broad audience, culminating with students giving a formal seminar.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Graduate College

GRAD 6010 Research or Intern Practicum
Prerequisites: Graduate standing.
Description: Graduate-level internship program for public administration, service or research. Blends the theoretical and absolute phase of the academic with practical on-the-job experience. Offered for variable credit, 1-9 credit hours, maximum of 12 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Graduate College

GRAD 6233 Laboratory in Microscopy
Prerequisites: Graduate standing and consent of instructor.
Description: Students learn sample preparation, theory, and operation of several instruments at the OSU Microscopy facility. Each student chooses online modules to complete for different instruments with differentiation for different sample and research types. Each module includes laboratory work with the instruments under supervision of Microscopy Facility staff. Previously offered as CBSC 6233 and VBSC 6233.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Graduate College

GRAD 6913 College Teaching Apprenticeship
Prerequisites: GRAD 5992 and enrollment in College Teaching Certificate program; EPSY 5463 or EPSY 6613; EDLE 6713 or EDLE 6583. Other EPSY/EDLE courses may be approved by Coordinator of program.
Description: Faculty member mentors doctoral student in instructing a university-level course.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Graduate
Schedule types: Lab
Department/School: Graduate College

GRAD 6921 College Teaching Practicum
Prerequisites: GRAD 6913.
Description: Student acts as instructor of record for an undergraduate course under the mentorship of a faculty member appropriate to the course taught.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Graduate College

Greek (GREK)

GREK 1713 Elementary Classical Greek I (F)
Description: Grammar and vocabulary of ancient Greek. Previously offered as GREK 1113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GREK 1813 Elementary Classical Greek II (F)
Prerequisites: GREK 1713 or equivalent proficiency.
Description: A continuation of GREK 1713. Grammar and readings of classical Greek authors. Previously offered as GREK 1223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GREK 2713 Elementary Classical Greek III (F)
Prerequisites: GREK 1813 or equivalent proficiency.
Description: A continuation of GREK 1813. Grammar and readings of classical Greek authors. Previously offered as GREK 2113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GREK 2813 Intermediate Readings
Prerequisites: GREK 2713 or equivalent proficiency.
Description: An introduction to a variety of classical authors to increase reading facility and grammatical comprehension. Previously offered as GREK 2213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

GREK 3330 Advanced Readings
Prerequisites: GREK 2813 or equivalent proficiency.
Description: Prose authors, epic poetry, drama, Koine Greek and religious texts. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

Health (HLTH)

HLTH 2213 Introduction to Public Health
Description: Introduction to the field of public health focusing on health principles, theories, career opportunities and a field experience. Previously offered as HHP 2213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 2323 Drugs and Society
Description: Impact of recreational use of drugs on society. Topics will include stimulant, depressant, and hallucinogenic recreational drugs, ergogenic substances and current research regarding addiction. Particular focus will be given to current trends of substance use and abuse. Cannot be substituted for HLTH 3913. Previously offered as HHP 2323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 2603 Total Wellness (S)
Description: Overview of individual, interpersonal, and sociocultural issues that have an impact on health. Behavioral decision-making, social relations, cultural diversity and environmental sensitivity. Previously offered as HHP 2603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych
General Education and other Course Attributes: Society & Human Behavior

HLTH 3010 Health Workshop
Description: Concentrated study of special topic(s) related to health not currently covered in the available undergraduate curriculum. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 3013 Public Health and Artificial Intelligence
Description: An introduction to the intersection of public health and artificial intelligence (AI). Students will learn how AI is transforming health promotion, disease surveillance, communication, and health systems while exploring ethical, social, and equity implications. The course emphasizes critical evaluation of AI tools, their applications, and their potential to reduce or exacerbate health disparities. Students will apply systems thinking to analyze the opportunities and challenges of AI for population health.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3113 Health Issues in Diverse Populations (D)
Description: The purpose of the course is to introduce concepts of health disparities, and equity for diverse populations across a range of health topics. The course will also introduce the students to community based solutions to health issues for diverse populations in an effort to promote inclusivity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych
General Education and other Course Attributes: Diversity

HLTH 3201 Health in Special Populations (D)
Description: Exploration and analysis of the influence of variables like race, ethnicity, gender, sexual orientation, and/or disability on various health outcomes.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych
General Education and other Course Attributes: Diversity

HLTH 3211 International Comparative Health (G)
Description: Global comparisons of disease, immunity and infection. Includes an exploration of the complex interaction between geopolitical systems, resource access, conflict zones, inequality and health from an international perspective.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych
General Education and other Course Attributes: International Dimension

HLTH 3343 Public Health Policy
Description: Public health policy from a health in all policies perspective and a systems-thinking framework for understanding the social and political aspects in the United States. Systematic thinking about state and national public health policy and developing skills for policy health advocacy. Focus on key features of the current U.S. health care and political system, and political and socio-economic concepts central to health policy debates. Will provide students with practice in critically evaluating pressing public health policy problems. Previously offered as HLTH 3351.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3511 Peer Health Education I
Prerequisites: Approval of instructor.
Description: Comprehensive analysis and application of the theory and practice of peer education principles, designed to educate and provide experiences in preparation for planning and/or participation in integral university or community peer education programs.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3512 Peer Health Education II
Prerequisites: Successful completion of HHP 3511 and approval of instructor.
Description: Comprehensive analysis and application of the theory and practice of peer education principles, designed to education and provide experiences in preparation for planning and/or participation in integral university or community peer education programs.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 3603 Understanding HIV (DS)
Description: Examines the HIV global epidemic from historical, political, epidemiological, biological, medical, psychological, legal, and ethical perspectives. Previously offered as HHP 3603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych
General Education and other Course Attributes: Diversity, Society & Human Behavior

HLTH 3613 Community Health
Description: A survey of issues impacting the health of populations from a community health perspective. Previously offered as HHP 3613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3623 School Health Programs
Prerequisites: HLTH 2603.
Description: The identity and relationships of school health instruction, services and environments. Previously offered as HHP 3623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3643 Health Behavior Theory
Description: Survey of biopsychosocial behavioral models to determine basis for health risk behaviors, with emphasis on determinants of health/risk behavior and exploring health behavior theories across age, sex, ethnicity, culture and socio-economic status. Same course as HHP 4503. Previously offered as HHP 3643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3673 Physical Activity and Public Health
Description: The course helps students gain an appreciation for the importance of integration of physical activity and public health. The techniques used to measure physical activity, the effects of physical activity on health, and strategies for physical activity promotion are the main content areas of this course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3723 Principles of Epidemiology
Description: Survey of epidemiological principles as they relate to the planning of both community and consumer-focused health promotion and disease prevention programs. Same course as HHP 4633. Previously offered as HHP 3723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3733 Disability and Health
Description: The course explores the many conceptions of disability in the United States and the psychosocial, health, and wellness impacts on deaf and disabled communities. Students will analyze disparities in deaf and disabled communities using a social determinants of health model, with an emphasis on public health, healthcare, education, and political systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3913 Substance Use & Public Health
Description: Introduction to the field of health education and health promotion focusing on health principles, theories, career opportunities, and a field experience. Same course as HHP 4033. Previously offered as HHP 3913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 3923 Social Determinants of Health and Public Health Equity
Description: This course focuses on the social and economic conditions under which people live that affect their health. We will explore how social determinants of health such as health care cost, access, and quality, economic stability, education access and quality, neighborhood and built environment, and social and community context influence the health of populations. We will also examine the role of public policy in shaping health outcomes for communities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 4010 Directed Study in Health
Description: Course is an independent study of health issues and trends through readings, research, and/or analysis. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 4233 Health and Sexuality (DS)
Description: The study of human sexuality as it relates to the health and well-being of individuals in the community, college, school or worksite settings. Previously offered as HHP 4233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych
General Education and other Course Attributes: Diversity, Society & Human Behavior

HLTH 4313 Public Health Communication
Description: Provides a broad overview and deep exploration into the evolving body of relevant health communication research, theory, and practice, examining the powerful influences of communication on the promotion of public health. Examines the evolving use of new digital communication technologies in health communication interventions and the implications of these new technologies for designing future health communication campaigns. Students will have a broad understanding of major areas of study in health communication and specialized knowledge in an area of interest.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 4533 Psychosocial Issues in Public Health
Description: Psychosocial issues as they relate to the practice of public health. Personal and professional applications of the course material will be emphasized. Previously offered as HHP 4533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 4770 Internship in Public Health: Exercise and Health (Athletic Training)
Prerequisites: Last semester; and Senior standing with cumulative 2.75 GPA; current CPR and First Aid Certification.
Description: Supervised field work experience in public health or health-related settings for students going in to the Master of Athletic Training 3/2 Program. Offered on a pass/fail basis. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 4783 Public Health and Aging
Description: An in-depth study of physiological aspects, special health concerns, chronic illnesses and services as applied to gerontology. Previously offered as HHP 4783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 4880 Internship in Public Health: Public Health
Prerequisites: Last semester and Senior standing with cumulative GPA 2.75 and current CPR and First Aid Certification.
Description: Supervised field work experience in public health or health-related settings for students in the Public Health option. Previously offered as HHP 4880. Offered on a pass/fail basis. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 4903 Pre-Internship Seminar
Prerequisites: Last semester prior to internship and consent of instructor.
Description: Capstone course for the public health program. Preparation for the health internship experience. Previously offered as HHP and HLTH 4902.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 4973 Program Design in Public Health
Description: A survey of program design principles, including theoretical foundations, planning, marketing, delivering and evaluating. Previously offered as HHP 4973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 4990 Internship in Public Health: Exercise and Health
Prerequisites: Last semester and senior standing with cumulative GPA 2.75 and current CPR and First Aid Certification.
Description: Supervised field work experience in public health or health-related settings for students in the Exercise and Health option. Previously offered as HHP 4990. Graded on a pass/fail basis. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 5000 Thesis Research
Description: Independent research required of candidates for master's degree. Credit awarded upon completion of thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 5010 Health Promotion Seminar
Description: Selected topics from the health promotion profession not covered in other courses. Presentation and critique of research proposals and results. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 5020 Health Promotion Workshop
Description: Workshop in selected areas of health promotion. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 5030 Field Experiences in Health Promotion
Description: Individual investigations and analysis of issues in health promotion. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 5113 Psychological Aspects of Health
Description: Examination of the interactions of biological, psychological, social, and spiritual factors as they impact human health and disease. Previously offered as HHP 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 5133 Environmental Health
Description: Examination of health issues, etiology of disease, and control and prevention of major environmental health problems in industrialized and developing countries. Same course as MPH 5133. Previously offered as HHP 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 5233 Sexuality and Health
Description: The study of human sexuality as it relates to the health and well-being of individuals in the community, college, school, and worksite settings. Particular emphasis will be on examining, developing, or modifying new programming related to sexuality and health. Previously offered as HHP 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 5323 General Epidemiology
Description: Examination of epidemiological theory and its methodological application to public health. Same course as MPH 5323. Previously offered as HHP 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 5453 Cultural Issues In Health
Description: Examination of ways in which culture affects health and health care including perceptions of health, disease, treatments, and the values associated with these factors. The need for cultural sensitivity in health care is emphasized. Same course as MPH 5453. Previously offered as HHP 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 5653 Foundations of Public Health Education and Promotion
Description: Exploration of key concepts, philosophies, ethical principles, historical events, theories/models, and responsibilities and competencies of public health promotion. Same course as MPH 5653. Previously offered as HHP 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 5683 Health Behavior Theory and Practice for Public Health
Description: Theories and concepts of health behavior change and exploration of the application of theories to public health programs. Same course as MPH 5683. Previously offered as HHP 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 5973 Designing Public Health Programs
Description: Application of program design principles, including needs assessment, theoretical application, program planning and marketing. Same course as MPH 5973. Previously offered as HHP 5973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 5983 Implementation and Evaluation of Public Health Programs
Description: Application of program implementation and evaluation, including evaluation design. Same course as MPH 5983. Previously offered as HHP 5983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

HLTH 6000 Doctoral Dissertation
Description: Required of all candidates for the Doctor of Philosophy degree. Credit is given upon completion of the dissertation. Offered for variable credit, 1-15 credit hours, maximum of 27 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 6010 Independent Study in Health Promotion
Description: Supervised readings, research or independent study of trends and issues related to the areas of health promotion. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

HLTH 6020 Research Colloquium in Health Promotion
Description: Topics-based graduate colloquium that explores selected topics and research in the areas of health promotion. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

Health and Human Performance (HHP)

HHP 1703 Introduction to Exercise Science
Description: An introductory course of the general history, theories, principles, nature and scope of Exercise Science. This includes foundations and sub-disciplines, an understanding of essential skills, and career opportunities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 1753 Introduction to Physical Education
Description: The nature, scope and significance of physical education. Historical and philosophical foundations, major sub-disciplines and their interrelationships, and career opportunities. Previously offered as PE 1753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 1823 Pedagogy of Non-Traditional Activities, Rhythm, and Movement
Prerequisites: HHP and RMRT majors and minors only.
Description: Introduction of activities typically taught to supplement individual or team sports in addition to basic fundamentals and methods of movement skills for rhythms including social, creative, developmental, and multicultural dance and activities. Content includes teaching strategies, assessments, skills analysis, skill components, concepts, terms, safety issues, selection of developmentally appropriate activities, and scope and sequencing of skill components by grade level.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 1843 Pedagogy of Individual Activities
Prerequisites: HHP and RMRT majors and minors only.
Description: Introduction of activities typically taught as individual sports and activities. Teaching strategies, skill components, terms, safety issues, and selection of developmentally appropriate individual activities, scope and sequencing of skill components, assessment, lesson structure, and writing performance objectives. Previously offered as HHP 1842.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 2222 Introduction to Health Aspects of Gerontology
Description: An introductory course of the physical and physiological aspects of aging combined with common pathology and intervention.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
Additional Fees: Individ Study Tuition and fee of $189.10 per credit hour applies.

HHP 2553 Basic Athletic Injury Management
Prerequisites: HHP 2654.
Description: Identification of emergency medical situations and application of basic care for injury occurring in school and athletic setting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 2602 First Aid
Description: A competency- and performance-based first aid course. Course previously offered as HLTH 2602.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 2654 Applied Anatomy
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: Action and location of individual muscles and muscle groups. Anatomy as applied to a living person. Common anatomical injuries and diseases will be presented with each joint structure. Lab sections will be structured around specific content area for students' discipline. Course previously offered as HHP 2653 and HLTH 2653.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

HHP 2802 Medical Terminology for the Health Professions
Description: Basic knowledge and understanding of medical language and terminology used in allied health and health professions.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3010 Health and Human Performance Workshop
Description: Concentrated study of selected areas of health and human performance, including problems in instruction and administration not usually addressed in the undergraduate curriculum. Course previously offered as HPEL 3010. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 3114 Physiology of Exercise
Prerequisites: MATH 1513 and HHP 1703
Description: A study of the various bodily systems, including major organs and tissues, and how they respond to acute and chronic exercise of varying intensity, duration and frequency. Course previously offered as PE 3114.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

HHP 3123 Principles of Personal Training
Description: To develop an understanding of the basic skills and competencies in personal training and evaluation and prepare for the National Strength and Conditioning Association (NSCA) personal trainer certification exam. A detailed study of personal training inclusive of musculoskeletal and cardiorespiratory anatomy, resistance training, aerobic exercises, nutrition, health appraisal, fitness testing, flexibility, and plyometric training. The role of the personal trainer will also be addressed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3133 Ergogenic Aids for Sports and Human Performance
Prerequisites: HHP 1703
Description: To develop an understanding of the safety, efficacy, and efficiency of various nutritional, pharmacological, physiological, or psychological aids in improving health and human performance within active populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3233 General Medical Concepts
Prerequisites: HHP 2654, HHP 2664, and ZOOL 3204, CHEM 1314, HHP 3673.
Description: Specific pathologies, medical conditions, and possible avenues for treatment of non-orthopedic conditions. Based in current medical research, theory and practical outcomes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3333 Ethics in Sports Administration and Coaching
Description: Exploration of the ethical, legal, and professional dilemmas that occur in athletic administration and coaching.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3433 Early Laboratory Clinical Experiences in Physical Education
Prerequisites: HHP 1753 or consent of the instructor.
Description: The initial pre-professional clinical experience for schools, kindergarten through grade twelve, with primary duties including assisting in physical education classes. Required for full admission to Professional Education. Graded on a pass-fail basis. Previously offered as HHP 3431.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

HHP 3443 Psychosocial Aspects of Sport and Coaching
Description: Examination of the psychological aspects of sport that impact the performances of coaches and athletes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3553 Theory and Practice of Coaching
Description: The purpose of the course is to introduce and analyze the essential concepts and knowledge concerned with coaching in sports and related areas. This course provides a platform from which deeper knowledge in specific sub disciplines can be acquired through class specialization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3664 Biomechanics
Prerequisites: HHP 1703 and HHP 2654.
Description: The study of anatomical mechanical phenomena underlying human motion. Application of biomechanical concepts to a wide variety of exercise, fundamental movement, sport and physical activity. Previously offered as PE 3663 and HHP 3663.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

HHP 3753 Methods in Teaching Elementary Physical Education
Prerequisites: HHP 1753, and HHP 1843, and HHP 3433.
Description: Instructional styles, implementation of behavioral goals and objectives through unit and lesson preparation, teaching methods and classroom management. Course previously offered as PE 3753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3773 Methods in Teaching Secondary Physical Education
Prerequisites: HHP 1753, and HHP 1843, and HHP 3433.
Description: Instructional styles, implementation of behavioral goals and objectives through unit and lesson preparation, teaching methods and classroom management. Course previously offered as PE 3773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3883 Coaching Internship
Description: Experience working with individual athletes, teams, coaches, and others in a practical setting.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 3924 Therapeutic Exercise
Prerequisites: HHP 3802.
Description: Scientific methods used in therapeutic exercise and rehabilitation of injuries. Investigation of mechanisms of injury, anatomical structures involved and methodological approach in designing rehabilitative programs. Course previously offered as HHP 3923, HHP 4923, and HLTH 4922.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

HHP 3933 Tactical Strength and Conditioning
Prerequisites: Exercise Science major, or consent of instructor
Description: Theoretical and practical knowledge necessary to design safe and effective strength and conditioning programs for improving human performance for the Tactical Athlete (i.e., law enforcement, firefighters, and military personnel). Emphasis will be placed on the fundamental principles underlying the prescription of aerobic and anaerobic fitness and performance regimes to enhance occupational performance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 3993 Building and Sustaining a Successful Sports Program
Description: Students learn skills and knowledge necessary to build a successful and sustainable sports program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4010 Directed Study
Prerequisites: Written approval by department head.
Description: Supervised readings, research or independent study of trends and issues related to the area of health, physical education or leisure services. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 4013 Motor Control and Learning
Prerequisites: BIOL 3204 or HHP 3114 or HHP 4064
Description: An in-depth study of the neural control of movement, motor learning and performance. Particular emphasis will be placed on the neural and physiological basis of human movement, motor learning theory, and the development of motor abilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4064 Neuroanatomy
Description: Comprehensive overview of the normal structure and function of the nervous system and its divisions under conditions of normal health as well as disease. Designed for neuroscientists, pre-medical, and health professions students. An introduction to clinically-oriented neurological assessment will be provided. Previously offered as HHP 4063.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

HHP 4083 Physiology of Aging
Description: This course will focus on how key physiological systems, such as musculoskeletal, neuromuscular, and sensory organs, develop and function throughout different phases of the human lifespan. Additionally, pathophysiologies associated with physical performance and age-related declines of these systems will be discussed at length.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4093 Physiology of Oxygen Transport with Exercise
Description: To provide students with a foundation of pulmonary and cardiovascular adjustments responsible for oxygen transport during acute exercise in humans.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4124 Principles of Strength and Conditioning
Prerequisites: HHP 2654 and (HHP 3114 or BIOL 3204)
Description: Designing and implementing safe and effective strength training and conditioning programs and apply exercise prescription principles for training, injury prevention, and reconditioning. This course is also designed to prepare students for the National Strength and Conditioning Association (NSCA) Certified Strength and Conditioning Specialist (CSCS) exam. Previously offered as HHP 4123.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

HHP 4243 Research Methods in Athletic Training
Prerequisites: STAT 2013.
Description: Interactive study of importance and process of conducting ethical research in athletic training and the healthcare professions. Emphasis placed on research design, ethics, collection of data, and the dissemination of results.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4443 International Perspectives of Coaching
Prerequisites: Permission of the Instructor.
Description: Students will acquire experiential coaching opportunities in an international environment, and will design and deliver coaching across a variety of sports and across multiple age groups.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4451 Athletic Training Practicum V
Prerequisites: Successful completion of HHP 3461.
Description: Directed observation in supervised advanced laboratory and clinical experiences in athletic training.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Kinesiology, Appl Health, Rec

HHP 4461 Athletic Training Practicum VI
Prerequisites: Successful completion of HHP 3233, HHP 4451.
Description: Directed observation in supervised advanced laboratory and clinical experiences in athletic training.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Kinesiology, Appl Health, Rec

HHP 4480 Internship in Health and Human Performance
Prerequisites: Last semester senior standing with cumulative GPA of 2.50.
Description: Supervised internship experience in public or private school, community worksite or athletic training settings in order to qualify or prepare for appropriate professional certification. Course previously offered as PE 4480. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 4643 School Health and Safety for Physical Educators
Description: Health and safety content for which physical educators are held responsible.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4723 Assessment in Physical Education
Prerequisites: Full admission to professional education.
Description: Evaluation techniques commonly used by physical educators and health professionals to measure knowledge, attitudes, sport skill proficiency and physical fitness. Course previously offered as PE 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4733 Organization, Administration and Curriculum in Physical Education and Athletics
Prerequisites: HHP 3753, HHP 3773 or concurrent enrollment; full admission to professional education.
Description: Curricular design and management of physical education (P-12) and athletic programs. Course previously offered as PE 4733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4774 Principles of Exercise Testing and Prescription
Prerequisites: HHP 3114
Description: Study of principles of exercise testing including submaximal and maximal tests, exercise and basic electrocardiography, and guidelines for recommending exercise as related to health promotion and exercise science. Previously offered as HLTH 4773 and HHP 4773.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

HHP 4793 Adapted Physical Education
Prerequisites: HHP 3753, HHP 3773, full admission to Professional Education.
Description: Cognitive and psychomotor characteristics of disabling conditions, needs and challenges of educating the exceptional learner in the regular physical education program. Course previously offered as PE 4793.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4813 Sport Science Assessment and Analysis
Description: Strategies and methodologies for assessment and analysis in sport science; examine injury mitigation techniques, assessments and analysis to optimize sport performance, applied project focused will integrate research to develop expertise in evidence-based practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4913 Advanced Training Strategies for the Tactical Athlete
Description: Exploration of strategies and methodologies for enhancing performance in military, law enforcement, and fire service settings; examination of injury mitigation techniques and physical preparation for tactical job demands; applied projects focus on specific tactical populations allowing students to integrate research and literature to develop expertise in evidence-based practices for optimizing tactical performances.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4933 Administration and Organization of Athletic Training Programs
Prerequisites: HHP 4451.
Description: The administration and organization of athletic training programs including planning and implementation, certification procedures, code of professional practice, safety standards and resource management. Course previously offered as HLTH 4933.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 4960 Internship in AES: Sport and Coaching Science
Prerequisites: HHP 3114 and HHP 3553
Description: The internship program for Applied Exercise Science (AES) at Oklahoma State University is intended for students to observe and gain practical experience in a professional environment in which they plan to work as a career. The internship experience consists of securing a placement such as a, hospital setting, rehabilitation clinic, commercial fitness site, athletic trainer, athletic strength and conditioning department, or similar areas. Evaluation of the intern experience rests on the supervising faculty and the internship supervisor. Graded Pass/Fail.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 4970 Internship AES: Pre-Professional
Prerequisites: HHP 3114 & HHP 4773
Description: Students observe and gain practical experience in a professional environment in which they plan to work as a career. The internship experience consists of securing a placement such as a hospital setting, rehabilitation clinic, commercial fitness site, athletic trainer, athletic strength and conditioning department, or similar areas. Evaluation of the internship experience rests on the supervising faculty and internship supervisor. Graded pass/fail. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 4980 Internship in AES: Strength and Conditioning
Prerequisites: HHP 3114 & HHP 4124
Description: Students observe and gain practical experience in a professional environment in which they plan to work as a career. The internship experience consists of securing a placement such as a, hospital setting, rehabilitation clinic, commercial fitness site, athletic trainer, athletic strength and conditioning department, or similar areas. Evaluation of the intern experience rests on the supervising faculty and the internship supervisor. Graded pass/fail. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 5000 Master's Thesis
Description: Independent research required of candidates for master's degree. Credit awarded upon completion of thesis. Course previously offered as HPEL 5000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 5010 Seminar
Description: Selected topics from the profession not covered in other courses. Presentation and critique of research proposals and results. Previously offered as HPEL 5010. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 5020 Health and Human Performance Workshop
Description: Workshop in selected areas of health and human performance. Course previously offered as HPEL 5020. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5030 Field Problems in Health and Human Performance
Description: Individual investigations of issues in the areas of health and human performance. Previously offered as HPEL 5030. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 5033 Advanced Techniques in Orthopedic Assessment
Description: Knowledge in evaluating various upper and lower extremity orthopedic injuries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5053 Research Design in Leisure, Health and Human Performance
Prerequisites: PSYC 5303 or STAT 5013.
Description: Research design with applicability toward leisure, health and human performance. Conceptual understanding of theory, tools and processes involved in designing research. Course previously offered as LEIS 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5064 Neuroanatomy
Description: Comprehensive overview of the normal structure and function of the nervous system and its divisions under conditions of normal health as well as disease. Designed for neuroscientists, pre-medical, and health professions students. An introduction to clinically-oriented neurological assessment will be provided. Previously offered as HHP 5063.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

HHP 5073 Psychological Aspects of Sport
Description: Psychological foundations of sport emphasizing performance enhancement by athletes through psychological training techniques. Course previously offered as HPEL 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5083 Physiology of Aging
Description: This course will focus on how key physiological systems, such as musculoskeletal, neuromuscular, and sensory organs, develop and function throughout different phases of the human lifespan. Additionally, pathophysiologies associated with physical performance and age-related declines of these systems will be discussed at length.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5093 Physiology of Oxygen Transport with Exercise
Description: To provide students with a solid foundation of the pulmonary and cardiovascular adjustments responsible for oxygen transport during acute exercise in humans.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5523 Current Readings in Health
Description: Contemporary research, literature, projections and views as applied to total health and well-being. Course previously offered as HPEL 5523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5543 Advanced Exercise Physiology
Description: A sophisticated exploration of the physiological and molecular mechanisms that govern human performance; examine the integrated nature of muscle function, bioenergetics, and oxygen transport, dissecting the intricate cascade of events from neural activation to metabolic substrate utilization; core focus on the body's acute and chronic adaptation to exercises.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5603 Principles of Performance Enhancement
Prerequisites: HHP 2654, HHP 3114, ZOOL 3204.
Description: Theoretical foundation of specific tenets of exercise and performance enhancement. Upon successful course completion students will be eligible to sit for the National Academy of Sports Medicine (NASM) examination for NASM Performance Enhancement Specialist certification.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5703 Principles of Corrective Exercise
Description: A scientific approach to corrective exercise program design and implementation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5733 Motor Learning
Description: Research in psychology and physical education relevant to the understanding of the nature and basis of motor skill learning. Course previously offered as HPEL 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5813 Sport Science Assessment and Analysis
Description: Strategies and methodologies for assessment and analysis in sport science; examine injury mitigation techniques, assessments and analysis to optimize sport performance, applied project focus will integrate research to develop expertise in evidence-based practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5823 Applied Neuromuscular Physiology
Prerequisites: HHP 2654.
Description: Structure and behavior of the human body, especially as it pertains to movement. Particular emphasis will be placed on neuroanatomy, the muscular system, and the neurophysiological basis of human movement. An introduction to clinical motor-related disorders will also be provided. Course previously offered as HPEL 5823.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5843 Introduction to Laboratory Techniques in Health and Human Performance
Prerequisites: HHP 5823
Description: Instruction and hands-on experience in the applied techniques to measure human movement and performance. Previously offered as HPEL 5843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
Additional Fees: HHP 5843 Consumable Mat fee of $10 applies.

HHP 5853 Clin Ex Test & Prescript
Prerequisites: HHP 3114.
Description: An in-depth study of the principles and application of clinical exercise testing including submaximal and maximal tests, oxygen consumption, and electrocardiography. Guidelines to prescribing individualized exercise plans will also be covered. Special attention will be paid to clinical variables and special populations. Course previously offered as HPEL 5853.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5873 Human Bioenergetics
Prerequisites: HHP 3114.
Description: Human energy production, utilization and storage in response to exercise. Course previously offered as HPEL 5873.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5913 Advanced Training Strategies for the Tactical Athlete
Description: Exploration of strategies and methodologies for enhancing performance in military, law enforcement, and fire service settings; examination of injury mitigation techniques and physical preparation for tactical job demands; applied projects focus on specific tactical populations allowing students to integrate research and literature to develop expertise in evidence-based practices for optimizing tactical performances.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 5923 Readings in Neurophysiology
Prerequisites: HHP 5823: Applied Neuromuscular Anatomy and Neurophysiology.
Description: Establishes a foundation in neurophysiology, particularly relating to the neural control of human movement. Developed through examining original research, especially the seminal articles from this field with special emphasis on areas of contention and controversy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 6000 Doctoral Dissertation
Description: Exploration and presentation of selected topics and research in health and human performance. Course previously offered as HPEL 6000. Offered for variable credit, 1-30 credit hours, maximum of 30 credit hours.
Credit hours: 1-30
Contact hours: Contact: 1-30 Other: 1-30
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 6010 Independent Study in Health and Human Performance
Prerequisites: Consent of instructor.
Description: Supervised readings, research or independent study of trends and issues related to the areas of health and human performance. Previously offered as HPEL 6010. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 6020 Research Colloquium
Description: Exploration and presentation of selected topics and research in health and human performance. Previously offered as HPEL 6020. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

HHP 6063 Grant Writing in Kinesiology, Applied Health, and Recreation
Prerequisites: Consent of instructor.
Description: Develop competitive grant writing skills, budget preparation, identification and selection of funding opportunities, and understanding the review and awards process. Course Previously offered as HHP 6060.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

HHP 6083 Biomedical Signal Acquisition
Description: Writing custom software for use in a laboratory setting using LabVIEW. Intended for any lab-based science degree programs in which signals are acquired and analyzed, especially BIOMEDICAL SIGNALS. Acquiring data, interfacing with laboratory equipment, and analyzing and organizing data, with self-designed custom software program. No prior computer programming knowledge required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

Health Care Administration (HCA)

HCA 4010 Special Topics in Health Care Administration
Description: This course is designed to provide an overview of current issues in health care administration that relate to planning, leadership, legal, ethical and other related topics. May not be used for degree credit with HCA 5010. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

HCA 4013 Survey of Health Care Administration
Description: Overview of current issues that relate to planning, legal, ethical and other related in topics in health care administration and leadership. May not be used for degree credit with HCA 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

HCA 4083 The Financial Structure of Health Care Organizations
Description: Overview of the financial structure of the U.S. health care system in health organizations. Provide the non-financial health administrators tools to work effectively with financial professions to achieve organizational goals. May not be used for degree credit with HCA 5083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

HCA 4103 Introduction to Global Health
Description: Highlights the chronic, emerging and re-emerging global health issues and examines possible measures to address them. May not be used for degree credit with HCA 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

HCA 4123 Survey of Research and Evaluation in Health Care
Description: Introduces the basic understanding of research and evaluation in healthcare. Students develop an understanding of research projects, including human subject research projects, including human subject research in both hospital and clinical settings. May not be used for degree credit with HCA 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

HCA 4133 Health Care Informatics
Description: An introduction to health care informatics to provide insight to the student on history, background, health information management (EMR, EHR), theory, telehealth, patient informatics, bioinformatics, eHealth trends, research, HIPAA, clinical practice guidelines and other relevant topics in health care informatics. May not be used for degree credit with HCA 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

HCA 4223 Ethics in Healthcare
Description: Evaluates specific in-depth case studies in ethical issues found within the healthcare setting. Presents scenarios for analysis which require appropriate solutions. May not be used for degree credit with HCA 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

HCA 4263 Patient Safety and Quality Improvement in Health Care
Description: Introduces the fundamentals of patient safety and quality. Examines the evaluation of quality and quality measures while assessing principles of quality improvement. May not be used for degree credit with HCA 5263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

HCA 4990 Healthcare Administration Internships
Description: An internship serves as a form of experiential learning that integrates knowledge and theory learned in the classroom while providing real-world practical application and skills development in a professional workplace setting (in-person, remote, or hybrid modalities). Internships provide students the opportunity to gain valuable applied experience, develop contacts, explore career fields, and make connections in professional fields. In addition, internships serve as a significant recruiting tool for employers, which is an opportunity for students to show their talents before graduation.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Professional Studies

HCA 5000 Research and Thesis
Prerequisites: Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Description: Serves as the independent research and preparation of the thesis for the MS degree in Health Care Administration. Course includes the study of existing research and methodologies directly related to the individual discipline via computer, literature review, classroom and applied training. Same course as HCA 5010.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Care Administration

HCA 5010 Special Topics in Health Care Administration
Description: This course is designed to provide an overview of current issues in health care administration that relate to planning, leadership, legal, ethical and other related topics. May not be used for degree credit with HCA 4010. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5013 Survey of Health Care Administration
Description: Overview of current issues that related to planning, legal, ethical and other related topics in health care administration and leadership. May not be used for degree credit with HCA 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5020 Seminar in Global Health
Description: Selected topics, problems and issues in global health. Same course as GLHE 5020. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5023 Human Resources in Health Care and Public Administration
Description: Review, discuss and analyze current issues, rules, practices and governance of human resources in health care and public administration.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5030 Problems and Issues in Global Health
Description: In-depth exploration of contemporary problems in global health. Same course as GLHE 5030. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5033 Legal Issues in Health Care Administration
Description: Explore, discuss and analyze current legal issues and topics that relate to all aspects of the health care profession.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5040 Advanced Issues in Health Care Administration
Description: Special intensive examination of selected topics in health care administration.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5043 Organizational Leadership and Development in Health Care
Description: Teaches leadership development theories, perspectives and skills found within health care organizations. Provides insight on leadership styles, team development, coaching and fostering growth. Prepares leaders for embracing change including globalization, knowledge management and sustainability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5052 Directed Readings in Health Care Administration
Description: Focuses on specific topics of interest and emphasis in health care administration. Topics will be chosen or assigned for focused literature review. Previously offered as HCA 5050. Same course as GLHE 5052.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5063 Health Care Compliance
Description: Introduces general concepts as they relate to health care compliance issues including legal issues, risk assessment, informed consent, credentialing, compliance and ethics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5073 The Social Structure of Health Care Organizations
Description: Sociology of health care with an understanding of the interconnectedness of financial incentives, social relationships, and health system performance. Examine the role physicians play in the social structure of health care institutions and the changing role of physicians in the health system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5083 The Financial Structure of Health Care Organizations
Description: Overview of the financial structure of the U.S. health care system in health organizations. Provide the non-financial health administrators tools to work effectively with financial professions to achieve organizational goals. May not be used for degree credit with HCA 4083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5093 Leadership Methods and Styles in Healthcare
Description: Introduces leadership methods, styles and situations that are unique in the health care field. Interprets those styles through specific case studies. Discusses the importance of strategic leadership planning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5103 Introduction to Global Health
Description: Highlights the chronic, emerging and re-emerging global health issues and examines possible measures to address them. Same course as GLHE 5103. May not be used for degree credit with HCA 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5113 Entrepreneurship and the Health Sciences
Description: Introduces entrepreneurship as it relates to the health care industry. Includes concepts within the for- and non-profit sectors. Focuses on entrepreneurial competencies of creativity and innovation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5123 Survey of Research and Evaluation in Health Care
Description: Introduces a basic understanding of research and evaluation in healthcare. Students develop an understanding of research projects, including human subject research in both hospital and clinical settings. May not be used for degree credit with HCA 4123. Same course as GLHE 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5133 Health Care Informatics
Description: An introduction to health care informatics to provide insight to the student on history, background, health information management (EMR, EHR), theory, telehealth, patient informatics, bioinformatics, eHealth trends, research, HIPAA, clinical practice guidelines and other relevant topics in health care informatics. May not be used for degree credit with HCA 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5143 Relief and Development in Global Health
Description: Explores the roles and interaction of intergovernmental and governmental agencies and NGOs involved in global health. Same course as GLHE 5143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5153 International Health Systems
Description: Provides an overview of the differences in global health care systems using a historical and socio-political context making extensive use of country case studies. Same course as GLHE 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5163 Healthcare Accounting and Auditing
Description: Introduces the unique aspects of healthcare accounting and auditing. Presents and discusses various accounting and auditing topics as they relate to healthcare administration.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5173 Emerging Global Infectious Diseases
Description: Develops a realistic approach to addressing emerging global infectious diseases, emphasizing global health implications in the areas of prevention, surveillance, and control. Same course as GLHE 5173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5183 Global Environmental and Occupational Health
Description: Examines environmental health concerns in the context of public health, and the social, economic and other factors that mitigate the effects of environmental hazards or otherwise influence the population. Same course as GLHE 5183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5193 Health Aspects of Disasters
Description: Addresses important thematic areas such as types, phases and effects of disasters on health, public health and medical responses of infectious diseases and pandemics. Same course as GLHE 5193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5203 Health Impact Assessment
Description: Evaluates the connection between community design and public health by applying evidence to inform decision-making for new policies and plans.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5213 Advanced Cases in Healthcare Finance
Description: Evaluates specific in-depth case studies in the financing and operations of different healthcare enterprises. Covers advanced concepts in health care finance that present analysis and judgement scenarios which require appropriate solutions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5223 Ethics in Healthcare
Description: Evaluates specific in-depth case studies in ethical issues found within the healthcare setting. Presents scenarios for analysis which require appropriate solutions. May not be used for degree credit with HCA 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5233 Advanced Leadership Methods and Styles in Healthcare
Description: Evaluates specific in-depth leadership styles and methods of different healthcare enterprises. Covers advanced concepts in health care leadership that present analysis and judgement scenarios which require appropriate solutions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5263 Patient Safety, Quality Measurement & Improvement
Description: Introduces the fundamentals of patient safety and quality. Examines the evaluation of quality and quality measures while assessing principles of quality improvement. May not be used for degree credit with HCA 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5273 Understanding Global Burden of Diseases
Description: Provides an overview of methods used for studying the global burden of diseases. Develops an understanding of how to use these methods to assess major trends for future forecasting. Same course as GLHE 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5283 Survey of Physician Employment and Practice Management
Description: Provides a comprehensive discussion of various types of physician-related administrative areas including physician recruitment, practice management, licensing, credentialing, contracts, and strategic planning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5303 Patient Experience
Prerequisites: Graduate standing.
Description: Provides a comprehensive development of skills in the area of patient experience. Understand the framework of the dimensions of patient-centered, safety, effectiveness, timeliness, efficiency, and equity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5313 Policy Development in Healthcare Administration
Description: Exploration of healthcare policy development from an administrative perspective. Policy development will be studied with regard to both behavioral and social healthcare structures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5323 Mental Health Policy Development for Healthcare Administrators
Description: Mental health policy development from an administrative perspective. Policy development will be evaluated with regard to the role of governments and stakeholders.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5333 American Indian & Alaska Natives Healthcare
Description: Introduction to American Indian and Alaska Natives health with local, national, and global perspectives.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5343 American Indian and Alaska Natives Health Care Policy
Description: Introduction to American Indian and Alaska Natives health policy examining historical, social, political, legal, arid economic factors and values that have influenced the development and implementation of health policy pertaining to American Indian and Alaska Natives.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5353 Tribal Sovereignty
Description: Focuses on a historical context of Tribal governance, federal Indian Law and Policy, as welt as contemporary issues of sovereignty confronting Tribes and government.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5363 American Indian and Alaska Native Leadership and Ethics
Description: Provides a detailed overview of the unique leadership and ethical considerations of American Indian and Alaska Natives peoples, specifically in healthcare services.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5373 Administrative Dimensions of American Indian and Alaska Natives Health
Description: Explores the unique role of Indian Health Service to American Indian and Alaska Native populations,
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5383 Tribal Health Cultural Dimensions
Description: Surveys cultural paradigms within tribal health.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5393 Healthcare Strategies
Description: Explores strategies within organizational management, leadership, and marketing that positively influence growth and development, specifically within healthcare organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5503 Nursing Leadership in US Healthcare Delivery
Description: Introduces the basic understanding of general topics related to the US healthcare delivery system within any healthcare setting specific to nursing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5513 Administrative Healthcare Nursing Leadership
Description: Introduces the basic understanding of administrative leadership to nurses within any healthcare setting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5523 Nursing Leadership in Healthcare Employee Management
Description: Introduces the basic understanding of employee management to nurses within any healthcare setting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5533 Nursing Leadership in Healthcare Fiscal Management
Description: Introduces the basic understanding of fiscal management to nurses within any healthcare setting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5990 Internship in Health Care Administration
Description: An opportunity for students to work on healthcare administrative, management and operational issues in an organizational setting. From this experience students will gain valuable skills that can be applied in future professional settings. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 5993 Clinical Operations Management
Description: Overview of healthcare delivery systems in the US to understand its challenges and opportunities. An exploration of the various components of clinical operations and its management, to include safety, quality and compliance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6013 Dynamics of Healthcare Markets
Prerequisites: Student must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: Provides an overview of healthcare markets in the U.S. identifies and evaluates the response of providers and consumers when changes occur within the system, presenting all views on health care reform.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6023 Practice in Health Care Administration
Prerequisites: Student must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: To allow students with aged coursework to demonstrate their proficiency and knowledge in the technical and practice topics within health care administration. The course is designed to refresh students who completed their previous graduate work in a time frame beyond the aged coursework policy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6033 Contemporary Topics in Health Care Administration
Prerequisites: Student must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: The course starts by introducing you to the history and context of U.S. Health Care. The course will explore the health care delivery system of the United States and the contemporary challenges to that system in delivering health care services.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6043 Theory in Heath Care Administration
Prerequisites: Student must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: To allow students with aged coursework to demonstrate their proficiency and knowledge in the theoretical topics within healthcare administration. Covers sixteen modules addressing the theoretical concepts of the core curriculum within the MS HCA program. The course is designed to refresh students who completed their previous graduate work in a time frame beyond the aged coursework policy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6053 Advanced Healthcare Law
Prerequisites: Student must be in the Doctorate in Health Care Administration (DHA) program or in the Graduate Certificate in HCA Compliance (HCCG) to enroll in this course.
Description: Provides an advanced analysis of the US legal system and a comprehensive development of skills to navigate common legal issues, laws, rules and regulations that affect the healthcare industry including litigation, malpractice, contract law, corporate law, intentional torts, privacy law, patients' and providers' rights and employment law.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6113 Healthcare Public Policy
Prerequisites: Students must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: Provides a framework for understanding the social, political and economic dimensions of health policy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6123 Advanced Clinical Operations Management
Prerequisites: Students must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: Explores various advanced components of clinical operations and management including safety, quality, and compliance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6213 Cases in Healthcare Quality and Process Improvement
Prerequisites: Students must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: Explores the quality improvement process in health care or health services research by focusing on the history and evolution of healthcare quality theories and practices. Provides a deep understanding of these processes through case analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6223 Advanced Cases in Healthcare Leadership
Prerequisites: Students must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: Analyzes healthcare leadership case studies through observations and experiences found within the literature and references presented.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6913 Graduate Seminar-Healthcare Payor Organizations
Prerequisites: Student must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: Provides a comprehensive perspective and analysis of healthcare payor organizations. Understand the structure of healthcare markets in the United States.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6923 Graduate Seminar-Graduate Medical Education Programs
Prerequisites: Student must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: Provides a comprehensive perspective and analysis of graduate medical education residency programs. Understand the specific techniques for establishing and running a graduate medical education program in both in-patient and out-patient settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6933 Graduate Seminar-Healthcare Organization Development
Prerequisites: Student must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: Provides a comprehensive perspective and analysis of strategic planning within top healthcare organizations. Understand the framework of planning through leadership, teamwork, technology, and communication.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6943 Graduate Seminar in Public Health
Prerequisites: Student must be in the Doctorate in Health Care Administration (DHA) program to enroll in this course.
Description: Provides a broad understanding of public health and engagement with diverse groups of people; working collaboratively with diverse communities and constituencies to advance public health goals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

HCA 6990 Graduate Seminar in Global Health
Description: Graduate Seminars in Global Health will provide students with foundational knowledge of global health's historical contributions; key terms and concepts; system organization; and the social, behavioral, environmental, and biological factors that contribute to specific individual and global health outcomes and the application and integration of concepts to understand and prevent global health problems. Maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

Hebrew (HBRW)

HBRW 1713 Elementary Biblical Hebrew I (F)
Description: This course is designed for students who wish to attain a basic facility with the language of the Hebrew Bible. This course will prioritize reading comprehension over other aspects of linguistic and philological skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

HBRW 1813 Elementary Biblical Hebrew II (F)
Prerequisites: HBRW 1713
Description: This course is designed for students who wish to attain a basic facility with the language of the Hebrew Bible. This course will prioritize reading comprehension over other aspects of linguistic and philological skills. The method employed will consist of a mix of deductive and inductive language acquisition, although this second semester will gradually include more inductive acquisition.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

HBRW 2713 Intermediate Biblical Hebrew I (F)
Prerequisites: HBRW 1813
Description: This course is designed to deepen one's facility and understanding of the Hebrew language. It will entail a blended approach using both an inductive method: reading and re-reading Hebrew texts themselves (mostly from Samuel), and a deductive component of discussing structural and linguistic elements of the language.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

Higher Education & Student Affairs (HESA)

HESA 1113 Orientation in Student Athletics
Description: To assist students to better understand and comply with the academic and athletic demands on student-athletes at a NCAA Division I university, including NCAA compliance issues. Previously offered as SDEV 1113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 1512 President's Leadership Council I
Prerequisites: Selection to President's Leadership Council.
Description: Ethical leadership concepts, theories, and competencies, introduced through the study of leadership, civic engagement, and ethics. May not be used for degree credit with HESA 3013.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 1521 President's Leadership Council II
Prerequisites: Selection to President's Leadership Council.
Description: Observe, analyze, and participate in leadership experiences and civic engagement activities. May not be used for degree credit with HESA 3013.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 2191 Residential Learning: Philosophies for Student Success
Description: Examines leadership and builds personal competencies using the lens of personal identity combined with the three-pillar student affairs philosophy of student leadership, community living, and student learning.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 2513 Foundations of Ethical Leadership
Prerequisites: 24 hours in good standing; admission into the UGLC or consent of instructor.
Description: Introduces students to a variety of theoretical views of ethics and leadership studies through the identification of contemporary ethical challenges and the development of foundational leadership skills to meet those challenges. Same course as EPSY 2513. Previously offered as EDLE 2513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 3013 Leadership Concepts
Prerequisites: 12 hours completed course work.
Description: Increases undergraduate student competence through the study of leadership concepts. Stresses communications, decision-making, leadership styles and theories and group dynamics. Attempts integration of theoretical concept with reality of application within the university community. Previously offered as SDEV 3013 and ABSE 3013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 3091 Student Development Theory for Orientation Leaders
Prerequisites: Consent of instructor.
Description: Theories of student development. Topics include helping skills, student leadership community building, communication skills, and multicultural sensitivity. Application of theory to university orientation programs. Previously offered as SDEV 3091.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 3092 Student Development Training for Resident Assistant
Description: Theories of student development. Topics include helping skills, community building, communication skills, and multicultural sensitivity. Application of theory to living groups. Previously offered as SDEV 3092 and ABSE 3092.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 3113 Civic Leadership
Prerequisites: HESA 3013 or permission from instructor; and HESA 2513.
Description: Exploration of opportunities for citizens to act as leaders in the community where they live and work. Identifying/practicing leadership skills, habits and dispositions useful in working with local non-governmental organizations, municipal employees and elected officials to solve public problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 3613 International Perspectives on Ethics and Leadership
Description: Faculty-led international travel course focused on applying leadership and ethics theories in culturally diverse environments. Each class travels to a different international destination and includes the history of the region. Requires pre-trip and post-trip meetings and assignments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 3910 Current Issues in Leadership
Description: Problems, trends, contemporary topics, and pertinent issues in leadership and/or student leadership development. Students will undertake concentrated study in selected areas. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 4173 Careers in Higher Education and Student Affairs
Description: Introduces individuals to careers in the higher education and student affairs profession. Topics include historical understandings of American higher education and the emergence of student affairs, theories of college student development, and potential careers in higher education and student affairs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 4513 Ethical Leadership for the Common Good
Prerequisites: HESA 2513 or EPSY 2513.
Description: Builds on foundational knowledge of ethical theory and leadership studies through application of ethical theory and leadership skills to specific contexts and evaluation of their results. Same course as EPSY 4503. Previously offered as EDLE 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 4910 Leadership in Practice
Prerequisites: HESA 2513 or HESA 3013.
Description: The art and practice of leadership in community settings. Typically taking in the final year of coursework in the undergraduate minor in Leadership. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5000 Master's Thesis
Prerequisites: Consent of instructor.
Description: Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

HESA 5113 Civic Leadership and Community Engagement
Description: Focuses on the role of community-oriented people and institutions as leaders in their communities. Entities receiving particular attention include education, public health and health care, and non-governmental agencies/organizations working to make their communities more equitable.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5173 Introduction to Student Affairs
Description: History, philosophy, and goals of student affairs units in colleges and universities; emphasis on practitioner roles and responsibilities. Previously offered as SDEV 5173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5213 Student Development Theory
Description: Examination of theories describing patterns of growth and development during the college years. Implications for the design of education practice on the college campus. Previously offered as SDEV 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5223 Career Development for College Students
Description: In-depth exploration of issues and contemporary theory related to the topic of career development for college students. Previously offered as SDEV 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5233 Advanced Student Development Theory
Prerequisites: HESA 5213.
Description: Focus is on contemporary and emerging theories of traditionally aged college student development from cognitive, spiritual, gender, racial identity, and student success families. Previously offered as SDEV 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5320 Seminar in Student Development
Prerequisites: Consent of instructor.
Description: In-depth exploration of contemporary problems in student development and student affairs administration. Previously offered as SDEV 5320. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Lecture: 3-6 Contact: 3-6
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5333 Introduction to Hidden Student Populations
Description: Introduction and exploration of hidden student populations across the secondary and postsecondary systems. Consideration of theory, research, and related practitioner concepts, as well as leadership and policy considerations. Previously offered as SDEV 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5340 Hidden Student Populations
Prerequisites: HESA 5333.
Description: Collection of six-week, one-hour courses, each of which provides in-depth study of a selected hidden student population. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5343 Assessment Techniques for Higher Education and Student Affairs Professionals
Description: General orientation to assessment for professionals in higher education and student affairs. Applied assessment concepts and practices in higher education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5433 Practicum in Hidden Student Populations
Prerequisites: HESA 5333 and admission to the graduate certificate in hidden student populations.
Description: Practicum opportunities serving hidden student population(s) under supervision of, or concert with, college or university service units and/or other appropriate on- and off-campus settings. Course is the culminating experience in the graduate certificate in hidden student populations. Previously offered as SDEV 5433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5463 Legal Issues in Student Affairs
Prerequisites: HESA 5173 or HESA 6173.
Description: Legal issues confronted by entry-level student affairs practitioners, how to recognize these issues, and how to act within the parameters of the law. Previously offered as SDEV 5463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5653 Research to Practice in Higher Education and Student Affairs
Description: Addresses the research-to-practice-to-research cycle for higher education professionals. Focuses on developing skills and knowledge for understanding, critiquing, and applying research to practice, as well as the role of practitioners in identifying additional areas of needed research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5720 HESA Creative Component
Prerequisites: Instructor approval.
Description: For approved students to complete the creative component. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

HESA 5733 Environmental Theory and Student Affairs
Prerequisites: Consent of instructor.
Description: Examination of campus environmental theory providing an understanding of campus environments approach to student affairs practice. Previously offered as SDEV 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5813 Leadership and Development of Higher Education Organizations
Description: Leadership theory and development of higher education institutions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5903 Capstone in Higher Education and Student Affairs
Description: Refine analytical frameworks and hone skills for responding to administrative challenges and opportunities in U.S. institutions of higher education. The course also provides an accountability structure to complete the creative component and professional portfolio requirements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5953 Organizational Development for Higher Education
Description: Scholar-practitioner approaches to understanding and developing higher education organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5973 Foundations of Higher Education
Description: Overview of the historical background and philosophical foundations of American higher education. Previously offered as EDLE 5973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 5983 Administrative Issues in Higher Education and Student Affairs
Description: Overview of the organization and administration operations and analyses of social, political and legal influences on colleges and universities. Previously offered as EDLE 5983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6000 Doctoral Dissertation
Prerequisites: Consent of instructor.
Description: Required of all candidates for doctorate in Educational Leadership and Policy Studies. Offered for variable credit, 1-9 credit hours, maximum of 15 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

HESA 6123 College Student Sexuality
Description: Exploration of historical and contemporary knowledge in the areas of college student sexuality, postsecondary sexual health education, gender diverse identities, and sexual identity development. Consideration of the construction of collegiate identities over time, and examination of how institutions of higher learning have influenced, regulated, or intersected with student sexualities, identities, and education throughout history and into present day.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6163 International Issues in Higher Education
Description: Examines current international issues in higher education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6173 Administrative Issues in Student Affairs
Description: Develops an understanding of the history, philosophy, student life, critical issues and administration of student personnel work in higher education. Previously offered as SDEV 6173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6213 The Diverse College Student, Paradigms and Practice
Prerequisites: Admission to doctoral program or instructor permission.
Description: Contemporary and emerging theories and models of development for students of diverse characteristics and backgrounds as foundations for research-to-practice related student-facing programs and services. Previously offered as SDEV 6213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6233 Critical Issues in Higher Education and Student Affairs
Description: Issues that have shaped and are shaping the practice of higher education and student affairs administration in American society. Previously offered as EDLE 6233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6243 Internship in Higher Education and Student Affairs I
Prerequisites: Consent of instructor.
Description: Work and study opportunities under supervision in higher education and student affairs functional areas and/or college or university administrative units, and other appropriate work settings. Previously offered as HESA 6220.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

HESA 6253 Internship in Higher Education and Student Affairs II
Prerequisites: Consent of instructor and HESA 6243.
Description: Work and study opportunities under supervision in higher education and student affairs functional areas and/or college or university administrative units, and other appropriate work settings. This course represents a second internship that follows HESA 6243.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

HESA 6463 Higher Education Law
Description: National and state constitutional provisions, laws, and court cases concerning higher education. Considerable legal research required. Previously offered as EDLE 6463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6553 Current Issues in Higher Education Policy
Description: Policy development, advocacy, and impact related to emerging issues and directives as they relate to higher education institutions and the students and communities they serve.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6573 Institutional Research and Policy Analysis
Description: Introduction to the processes and procedures of institutional research and policy analysis, as they are utilized within the context of American higher education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6583 The Impact of College on Students and Society
Description: The psychological and sociological impact that attending four-year colleges and universities has on undergraduates from their freshman year until they graduate.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6603 Organizational Theory and Administration of the Higher Education Organization
Description: Selected theories in organizational structure, culture, politics and complexity. Functions and principles of administering higher education organizations considering internal, external and contemporary forces.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6683 The U.S. Two-Year/Community College
Description: The U.S. two-year/community college including historical and philosophical development, contemporary mission, curricula, students and the learning process, faculty and instruction, administration and governance, and funding. Principles, practices and problems of two year/community colleges in the U.S. Previously offered as EDLE 6683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6703 Finance in Higher Education
Description: Problems and prospects of financing American education, with in-depth discussion of selected topics, e.g., social capital, federal aid, faculty salaries and state support. Previously offered as EDLE 6703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6710 Special Problems in Higher Education and Student Affairs
Description: Focused study of recurrent or unique problem(s) in higher education and student affairs. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

HESA 6713 Effective Teaching in College and Universities
Description: Relevant research and practice about effective college teaching, role of faculty in higher education settings, and development of teaching strategies and lessons for application in college classrooms. Previously offered as EDLE 6713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6733 Leadership in Contemporary Higher/Postsecondary Systems I
Prerequisites: Admission to doctoral program or instructor permission.
Description: Considers contemporary demands and frameworks for leadership and change in higher education organizations. This course is intended for people who are currently or aspire to mid- to senior level positions in higher/postsecondary education or adjacent organizations. Previously offered as EDLE 6733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6753 Historical Development of U.S. Higher Education
Description: History and development of U.S. higher education, studies of objectives and functions of institutional types and of students and faculty. Introduction of tools and methods appropriate for employing historical approaches to the study of higher education and student affairs. Previously offered as EDLE 6753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6803 Administration in Higher Education
Description: Functions and principles of administration in higher education from historical and contemporary points of view. Both internal and external forces acting on the institution treated. Previously offered as EDLE 6803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6813 Conceptualizing the Study of Higher Education
Prerequisites: Admission to doctoral program or instructor permission.
Description: Exploration of research paradigms, as well as theories of organizational behavior, student development, and socio-cultural phenomena, suitable for conceptualizing the study of higher education and student affairs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6823 Leadership in Contemporary Higher/Postsecondary Systems II
Prerequisites: HESA 6733 or instructor permission.
Description: Leadership and the implications of leadership across higher education/postsecondary systems, contexts, cultures and time. Previously offered as EDLE 6823.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6833 College and University Presidency
Description: The role and function of the presidency. For those who anticipate a career in college and university administration or a related management position. Previously offered as EDLE 6833.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6843 The Academic Department
Description: Organization and administration in higher education emphasizing an analysis of the academic department and its leader, the department head. Previously offered as EDLE 6843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6850 Directed Readings in Higher Education and Student Affairs
Prerequisites: Consent of instructor.
Description: Directed reading for students with advanced graduate standing. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

HESA 6853 Research Design for Higher Education
Prerequisites: HESA 6813
Description: Exploration of advanced integrated research strategies and the development of designs and methods supporting the field of higher education and student affairs administration. Previously offered as EDLE 6853.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6863 University and College Campus Culture
Description: This course examines the concept of institutional and collegiate culture as a lens to understanding higher education institutions and their various stakeholders. Previously offered as EDLE 6863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6870 Seminar in Higher Education and Student Affairs
Description: Topical issues related to higher education and student affairs. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

HESA 6903 Dissertation Proposal Writing
Description: Assists doctoral candidates in the Higher Education and Student Affairs program with the development of Chapters One through Three of their dissertation proposals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

History (HIST)

HIST 1010 Studies in American History
Description: Special study in American history to allow transfer students to fulfill general education requirements as established by Regents' policy. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: History

HIST 1103 Survey of American History
Description: Meaning, vitality, and uniqueness of United States history since 1492 through a thematic examination of the nation's past. Satisfies, with POLS 1113, the State Regents requirement of six credit hours of American history and American government before graduation. No degree credit for students with credit in HIST 1483 or HIST 1493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 1483 American History to 1865 (H)
Description: From European colonization of the Americas through the U.S. Civil War. Examines important political, economic, social, and cultural developments, such as the transatlantic slave trade, the American Revolution, the Constitution and the Bill of Rights, the Market Revolution, Antebellum slavery, the abolitionist movement, Indian Removal, and sectionalism and the Civil War. Intended for Education majors seeking certification as Social Studies teachers. May not be used for degree credit with HIST 1103. Previously offered as HIST 2483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures
Additional Fees: Individ Study Tuition and fee of $189.10 per credit hour applies.

HIST 1493 American History Since 1865 (DH)
Description: From the period of Reconstruction to the present. Examines important political, economic, social, and cultural developments, such as the Compromise of 1877, lynching, Jim Crow, economic imperialism, the Progressive Era, U.S. participation in the world wars, the Great Depression, the New Deal consensus, redlining/suburbanization, the Cold War, the Civil Rights Movements, the Reagan Revolution, and the "culture wars." May be taken independently of HIST 1483. May not be used for degree credit with HIST 1103. Previously offered as HIST 2493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour, Cowboy Concur OL Res Tuition fee of $189.10 per credit hour, and STW HS Concurrent Enroll Tuit fee of $189.10 per credit hour apply.

HIST 1613 Western Civilization to 1500 (H)
Description: History of western civilization from ancient world to Reformation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 1623 Western Civilization after 1500 (H)
Description: History of western civilization from Reformation to present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 1713 History of Asia to 1800 (H)
Description: History of three eastern civilizations (East Asia, South Asia and West Asia) from pre-history to the 18th century. Special attention to their origins, development, and contributions to the evolution of world history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 1813 World History from Ancient Times to 1500 (H)
Description: This course examines the development of social, cultural, economic, and political systems from ancient times to the beginning of the sixteenth century. We will examine the growth of empires, trade routes, religions, and culture in Asia, Africa, the Americas, and Europe. This course will examine the ways in which these societies connected and made contact with each other through trade, warfare, and migration and the resulting exchange of ideas. Previously offered as HIST 2213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 1823 World History 1500 to Present (H)
Description: This course surveys world history from 1500 to the present day. The course will track the formation of the "modern" world through a study of changes in political situations, culture, and society. The course will examine topics such as changes in science and technology, culture and religion, the expansion and decline of empires, the growth of nationalism, and the continuing rise of globalization. The class will emphasize the role of changing definitions and roles of race, social class, and gender in shaping historical events. Previously offered as HIST 2223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2023 History of the Present (H)
Description: Introduction to the study of history through the lens of current events and contemporary issues. Particular areas of focus will vary, based on instructor's expertise, to include topics like race, gender religion, food, sports, environment, politics, immigration, mass incarceration, and/or globalization, among others. Contact the History Department for specific information for the upcoming semester.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2033 History of Money
Description: Everyone needs money. And we use money every day, but we rarely stop to think about its history. This class explores the history of money and the different forms it has taken over time, including the world before cash. It investigates who is allowed to mint, print, lend, and regulate money along with changing connections between wealth and status in societies across time. While the particular areas of focus will vary by semester, the class will explore how authority and power are central to money's long history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 2043 Ghosts and Graveyards: History of Dark Tourism (H)
Description: This course explores the history of dark tourism, including practices and impact. Students will analyze tourist experiences in spaces associated with tragedy, suffering, death, and spookiness.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2133 African Diaspora History(DH)
Description: Introduction to the origin, development, and maturation of the African Diaspora in the Americas and the Caribbean, beginning on the African continent and moving through the Americas, Caribbean, and Europe. It considers important issues, such as the formation of racial identities, movements, the circulation of ideas and connections in activism, and the manner in which the intersection of race, class, gender, sexuality, location, language, and power influence how groups and individuals experience diaspora. Previously offered as HIST 3133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 2153 African American History, 1619-1865 (DH)
Description: Overview of the history of African Americans from their African origins to their participation in and impact on the Civil War. Topics include: African background; interaction between Africans, Indians and Europeans; development of slavery; forms of resistance; rise of the abolitionist movement; and conditions of free blacks. Previously offered as HIST 4153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 2163 African American History, 1865-Present (DH)
Description: Overview of the history of African Americans from the end of the Civil War to the present. Topics include emancipation and Reconstruction; the Jim Crow Era; migrations to the North and West; the Civil Rights and Black Power Movements; contemporary developments in African American life. Previously offered as HIST 4163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 2203 The Medieval World, 500-1500 (H)
Description: The society and culture of Europe, Byzantium and the Middle East, 500-1500. Emphasis on social, cultural, religious and political developments. Previously offered as HIST 3203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2313 Heroes and Wonders of the Ancient World (H)
Description: Highlights of ancient history, especially from Egypt, Mesopotamia and Greece. Examines the Seven Wonders of the Ancient World and heroes such as Gilgamesh, Achilles, Sappho and Heracles. Other major historical and archaeological discoveries are also featured.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2333 American Thought and Culture: Survey (H)
Description: Survey of American religious, philosophical, artistic, and scientific ideas and their impact on culture and values.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2343 Religion in America (DH)
Description: Survey of the religions practiced in North America and the United States from the colonial era to the twenty-first century, including Native American religions, Christianity, Islam, and Judaism; impact of religion on social reform, politics, and intellectual life.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 2353 Environmental History (H)
Description: A history of the environment that studies the changing relationships between humans and the natural world around them. It will explore both how people have thought about the environment and the role of science, economics, disease, and states in shaping how humans and non-human animals have lived on land.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2413 From Assassin's Creed to Witcher: Medievalism in the 21st Century World (H)
Description: Assesses video game and film portrayals of the Middle Ages and medievalism. Through historiographical readings and critical analysis of modern media sources, examines the ways in which popular media depictions of the past weave fact with fiction, building on our common cultural narrative of "medieval-ish" worlds. No credit for degree credit in HIST 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2473 American Imperial Culture
Description: This course is designed to be a broad survey of American imperial culture, and responses to it, with a focus on the period from 1890 to 1960. Same course as AMST 2473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 2513 Plantation to Plate: Sugar, Bananas, and Coffee in America (H)
Description: Considers the historical impact that three food commodities – bananas, sugar, and coffee – have had on producing and consuming societies in Latin America and the United States. Analyzes the way food influenced the formation of racial and gender identities and examines different moments when these commodities influenced foreign policy and politics. Same course as AMST 2513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2523 Dust Bowl (H)
Description: Examination of the Dust Bowl as: an ecological, economic, and human tragedy; cultural representations in film, literature, art, photography, and music; and a comparative example to study modern issues of ecology, water rights, and environmental justice in the southern plans and around the world. Same course as AMST 2523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2603 History of Science (H)
Description: This course offers an introduction to the history of science from the ancient world to the present. It will not focus exclusively on discoveries and their discoverers. Instead, it will stress questions such as: What is science, how has it been practiced, and by whom? Does culture play a role in scientific development? What is the relationship of gender, race, class, sexual identity, and science? May not be used for degree credit with HIST 3073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2613 History of Disease (H)
Description: A global history of diseases across time. Emphasis on infectious diseases and pandemics and their social, cultural, and political effects. May not be used for degree credit with HIST 3893.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2713 Sympathy, Curiosity, and Rivalry: The U.S. and China Since 1900 (H)
Description: This course offers a historical overview of the United States and China since 1900. Students will have the unique intellectual experience of looking at each country's recent history from the perspective of the other. More than diplomatic relations, it also covers the social and cultural experiences of both, particularly in areas where they inspire, impact on, and interact with each other.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 2890 Honors Experience in History
Prerequisites: Honors Program participation and concurrent enrollment in a designated HIST course.
Description: A supplemental Honors experience in History to partner concurrently with designated History courses. This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Honors Credit

HIST 3013 Ancient Egypt and Israel (H)
Description: The history of Egypt from prehistory through the New Kingdom, and ancient Israel from prehistory through the Persians.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3023 Ancient Greece (H)
Description: The Greek world from the Bronze Age through Alexander the Great with special emphasis on politics, culture and institutions of Classical Greece.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3033 Ancient Rome: The Republic (H)
Description: Political, social, cultural and economic history of the Roman Republic from the Etruscans to the death of Julius Caesar.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3043 From the Garden of Eden to Babylon (H)
Description: From the birth of civilization to the end of the Persian Empire, this course examines the history, archaeology and cultures of the fertile crescent.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3063 The Roman Empire (H)
Description: This empire provides a historical survey of the Roman Empire from the middle of the 1st century BCE through the middle of the 5th century CE. This course covers a range of interrelated themes and issues that shaped the everyday lives of Romans, including the importance of social hierarchies within and across civil affairs and family life; the various political structures and forms of governance within the empire; the dimensions of military life, conquests and expansion; economic realities; work and leisure; and various cultural aspects including the roles of religion and philosophy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3083 Modern Italy: Cultural Patrimony and National Identity (GH)
Description: This course will examine Italy's cultural patrimony and its role shaping the country's national identity and international reputation. Students will study the influence of Italy's artistic and architectural heritage on modern Italian society, global tourism, and international conservation policies. Among the topics explored will be Pompei and the western imagination, the Monuments Men during World War II, mass tourism in the city of Venice, and the competing interests of international, national, and local communities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3093 Historical Geography of North America to 1800 (H)
Description: This course is an examination of the cultural geography of colonial North America from the earliest European contact with Native Americans to the end of the 18th Century. The course examines regional patterns of indigenous American Indian settlement, European exploration, trade, coloniatization, immigration, impacts upon indigenous societies, and the development of pre industrial economic regions. Students will gain an appreciation of the interactions of various indigenous, European, and African peoples in different environments in the colonial era. Same course as GEOG 3093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3113 Germany Since 1815 (GH)
Description: Creation of a centralized state in Germany; impact of World War I and the subsequent failure of the Weimar Republic; rise of national socialism, totalitarianism, and the Third Reich; German experience in WWII, repression of minorities, and the Holocaust; post-war Germany and modern reunification.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3123 History of Africa (GH)
Description: This course will examine the deep history of Africa, but with special emphasis on understanding through present day issues. We will discuss and analyze the African peoples, their everyday challenges (economic, legal, environmental, political, social, and cultural), and governance structures across precolonial, colonial and postcolonial periods. In exploring these various facets of Africa's past, we will gain insights into the diverse ways through which Africans and Africa have negotiated, contested, renegotiated, and reinvented themselves in global history over the long durée.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3153 Russia to 1861 (H)
Description: Political, institutional, societal and economic development of Russia from the Kievan period to the Great Reforms.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3163 Russia Since 1861 (GH)
Description: Modernizations of Russia in the 19th and 20th centuries. Great reforms and their effects and the 1917 revolutions and their consequences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3233 Late Medieval World, 1000-1450 (H)
Description: The Late Middle Ages in Europe and its ties to the Middle East. Examines the period of the Black Death, Hundred Years War, early Renaissance, and the flourishing of new forms of government, religious life and social upheaval. Emphasis on social, cultural, religious and political developments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3243 Renaissance, 1350-1517 (H)
Description: The development of the Renaissance from the Italian city-states to the New World. Political development, cultural innovation, and the role of disease in history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3253 Absolutism and Enlightenment, 1648-1789
Description: Political, economic, social, intellectual and religious transformation of Europe between the Peace of Westphalia and the French Revolution.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 3263 Modern Europe, 1815-1914 (H)
Description: Examines the history of Europe from the end of Napoleon through the start of World War I. Emphasis on political revolutions, modern nationalism, industrialization, cultural movements, imperialism, and alliance diplomacy that transformed the Continent into a battleground in 1914.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3273 Modern Europe Since 1914 (GH)
Description: Origins, character and impact of the first World War; emergence and consequences of the totalitarian state; nature of political and intellectual terrorism. Effects of worldwide economic depression; dilemmas of modern democracies; political collapse of Europe as a consequence of World War II.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3303 Nations on the Move: Latin American Migration and Latinx Communities in the US (DH)
Description: Examines Latin American migration to the United States through a case study approach. Considers US foreign policy, questions of labor and economic motivations, political violence and persecution, changes in immigration law, environmental issues, histories of the process of migration, and the formation of new identities and transnational communities and activism in the United States. Same course as AMST 3303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3323 Modern France, 1789-Present (GH)
Description: French politics, economy, society, and culture from the Revolution and rise of Napoleon to France's post-World War II "rebirth" and reckoning with its colonial past.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3333 History of the Second World War (GH)
Description: Problems leading to World War II with their international implications and consideration of the war years.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3343 World War I in Modern European Culture (GH)
Description: Analysis of the war as the principal event determining the course of twentieth century European history: battles, home fronts, personal, literary and artistic expression.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3363 Popular Religion in the West, 1300-1700 (H)
Description: The study of the religious experience of both lay people and clergy between 1300 and 1700, when their religious worldview underwent fundamental challenges and changes. The effort to understand the relationship between the secular world and the supernatural will be explored through devotional ideas, practices and religious rituals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3373 Invasion and Identity: The Medieval English World: 700-1400 (H)
Description: Medieval English history through Britain's experience of invasion and settlement: includes the Vikings, Normans and England's conquest of Britain and parts of France. Emphasis on social, cultural, political and religious history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3383 Tudor-Stuart England (H)
Description: History of England from the War of the Roses through the coming of the House of Hanover in 1714. Development of the centralized state, parliamentary reaction, reorientation of the English society and economy and the English Reformation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3393 History of Modern Britain and Ireland: Rebellion, War, and the Victorians (H)
Description: This course will examine British and Irish history from the time of the Industrial Revolution, to the age of Sherlock Holmes and Queen Victoria, through the First and Second World Wars, to the Troubles in Ireland, and up to the present day. The course will investigate how ideas of national identity, social class, religion, and race shifted from the late eighteenth century to today.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3403 East Asia to 1800 (H)
Description: Traditional Chinese civilization and its impact on Japan, Korea and Southeast Asia.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3413 East Asia Since 1800 (GH)
Description: Impact of the Occident on China, Japan and Southeast Asia. Problems of trade and diplomacy; political and industrial transformation of Japan; revolutionary process in China; the rise of nationalism in Southeast Asia.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3423 Modern Japan (GH)
Description: Modernization process in Japan since 1868.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3433 Modern China (GH)
Description: Response of China to the West since 1840, with stress on economic, social and intellectual currents.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3443 Gender Relations in Chinese History (H)
Description: Men's and women's social, cultural, religious, political, economic, family, and sexual experiences in Chinese history; particularly women's own voices and efforts in pursuing their own goals and aspirations. Same course as GWST 3443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3453 Colonial Latin America (H)
Description: Considers the encounter between Indigenous peoples and Europeans in Latin America, analyzing the formation of race, class, religious, and gender identities. Focuses on Indigenous and European experiences with imperialism, 18th Century reforms, and independence movements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3463 Modern Latin America (GH)
Description: Considers nation-state formation in Latin America, emphasizing 19th century dictators and liberal reform movements. Explores U.S. foreign policy, indigenous mobilizations, 20th century revolutions, and contemporary issues such as natural disasters, the drug trade, and immigration.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3473 British Empire and Commonwealth of Nations (H)
Description: This course will examine the growth of the British Empire from the eighteenth century to decolonization in the twentieth century. The course will focus on Britain's colonies in Africa, Asia, and the Americas, and compare British imperialism to other global imperial powers. Topics will include historical studies of colonial literature, exploration, popular culture, medicine, education, military history, imperial anthropology, and gender.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3483 Reformation Europe, 1517-1648 (H)
Description: Development and impact of religious reform movements, overseas expansion, statebuilding, the Scientific Revolution, and the Thirty Years' War on European civilization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3503 Medieval Islamic History (H)
Description: Rise of Islam in Arabia and subsequent spread to Africa, Asia and Europe. Discussion of political, social, cultural and economic institutions established in the Middle Ages as well as diversity of Islamic and continuing non-Islamic traditions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3513 Modern Middle East (GH)
Description: Main political events, social institutions, cultural and economic developments, as well as various aspects of everyday life in the Middle East. Transformation of traditional society, imperialism and independence, Arab nationalism, Arab-Israeli conflict, the impact of oil, westernization, the rise of militant Islam, and the prospects of democratization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 3573 The Mongol Empire (H)
Description: Genghis Khan is infamous for destruction of his conquests, yet his empire grew to be the largest land empire in history, and sparked diplomatic and cultural contacts on a far wider scale than ever before. This course traces the Mongol Empire from Genghis himself to the legacy of the divided Mongol khanates. Attention will be paid to the Mongol Empire's institutional structure, political and cultural dynamics, contacts with Europe, and historians' methods for using primary sources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3593 Introduction to Museum and Cultural Studies (H)
Description: Historical and theoretical introduction to museum ethics, the function of the curator, and the hanging role of the museum. Same course as ART 3583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3603 Historians at Work
Description: This course introduces students to the history business. Students will develop skills in marketing, proposal writing, proposal evaluation, budgeting, project management, and interdisciplinary collaboration. These skills are valuable in a wide range of careers inside and outside the humanities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 3610 Topics in United States History
Description: Special topics in United States history. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 3613 American Colonial Period to 1750 (H)
Description: European colonization of North America; political, social, cultural, intellectual, religious, and economic developments; Native American engagement with and resistance to colonialism; relations between English, French, and Spanish colonies; and the emergence of slavery in America.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3623 Era of the American Revolution (H)
Description: Transition from British colonies to independent United States; important military, political, cultural, economic, social, and religious aspects of the American Revolution; how changes affected all people in America, including African Americans, Native Americans, and women.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3633 The American Founding (H)
Description: This course will familiarize students with the major intellectual, social, political, artistic, and economic trends that shaped the founding of the United States. Special attention will be given to the framing and early shaping of the U.S. Constitution, major political controversies in the fractious 1790s, the diverse groups that comprised the founding generations, and the ways the American founding shape our present society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3643 Antebellum America, 1828-1850 (H)
Description: Major social, cultural, economic, and political developments of mid-nineteenth-century America including: Indian removal, early social reform the expansion of slavery, the growth of capitalism, settler colonialism in the West, and the origins of political sectionalism leading to disunion.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3653 Civil War and Reconstruction, 1850-1877
Description: Causes, decisive events, personalities and consequences of the disruption and reunion of the United States.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 3663 U.S History 1877-1919 (H)
Description: The impact of industrialization upon American society and politics. America's rise to world power, the Progressive movement and World War I.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3673 United States History, 1919-45 (DH)
Description: The political, economic, social and cultural changes in the United States from 1919 to 1945, the 1920s, the Depression, the New Deal, WWII, and domestic impact of the war.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3683 United States History Since 1945 (DH)
Description: The political, social, and cultural history of the United States since World War II. Topics include the Cold War at home and abroad, the Civil Rights and other social movements, 1960s culture vs. counterculture, the Vietnam War, Watergate, Reagan's America, the War on Terror, and modern globalization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3693 The Modern West (H)
Description: This course will survey the political, economic, social, and cultural history of the twentieth- and twenty-first century American West. For generations, historians, politicians, and culture makers have grappled with the question of the significance of the West to American development and identity. This course lays the groundwork to understand the region's history, as well as grapple with the wide variety of peoples (domestically and globally) who have sought to locate meaning in the region for themselves and their experiences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3703 Oklahoma History (DH)
Description: Early exploration and establishment of Indian Territory; the rise and demise of the Five Indian Nations; and the organization and development of the 46th state to the present. Required of all candidates for teacher's licensure/certification in social studies. Previously offered as HIST 2323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3710 Topics in European History
Description: Special topics in European history. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 3713 Women in the American West (DH)
Description: Introduction to the history of women in the American West from pre-contact to present, with emphasis on cultural diversity, women's roles as economic and social partners, and the many ways women were active participants in western development. This course incorporates Oklahoma and public history using written documents, art, film, museum and archival materials, and local historical sources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3753 Trans-Mississippi West (DH)
Description: Emergence of the modern West from Spanish and French settlement and exploration, the Rocky Mountain fur trade, the settlement of Texas, Oregon, California, and Utah, the mining, ranching and farming frontiers, the Indian Wars and transportation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3763 American Southwest (DH)
Description: Southwestern states of Texas, Arizona, New Mexico and California from the Spanish colonial period to the present. Mining, ranching, farming frontiers, Indian wars of the Apache, Comanche and other southwestern tribes, and the emergence of the modern Southwest.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3773 The American South to 1860
Description: Social, political and industrial conditions in the South before the Civil War.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 3793 Native American History (DH)
Description: Introduction to the history of Native American peoples from encounters with European colonists to the present, with an emphasis on tribal nationhood and sovereignty, war and diplomacy, treaty rights and federal policies, indigeneity in modern contexts, and a leadership in Indian Country.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3803 History of Food (H)
Description: This course offers an interdisciplinary examination of the history and culture of food production and consumption in the US with an emphasis on how US food ways relate to those of other countries. It examines such topics as: food and the formation of social bonds, food and identity, the cultural meaning of food ways, issues of justice and equality in food production and consumption, and how food cultures have developed over time and in relation to other societies. Same course as AMST 3733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3810 Topics in World History
Description: Special topics in world history. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 3843 War and Memory in America (H)
Description: Examines the ways in which Americans have remembered and commemorated war from the American Revolution to the Global War on Terror. Topics include the creation and perpetuation of memory from both soldiers and civilians, the portrayal of war in popular culture, and the challenges of commemorating and memorializing America's militant past. Same course as AMST 3843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3853 History of the North American Borderlands (DH)
Description: This class analyzes the histories of the US-Mexico, US-Canada, and Native American borderlands from the 16th century to the present. Topics include indigenous spaces and sovereignty, the establishment of colonial regimes, the formation of nation-states and changing notions of citizenship, immigration policies and experiences, intercultural and interracial communities and tensions, crime and smuggling, representations of the border in media and popular culture, and the political and economic relationships between the United States, Mexico, and Canada.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3863 Disability in America (DH)
Description: Examines the history of disability in American culture. Considers evolving ideas about disability and the status of disabled people in American society. Topics include disability and the law; eugenics; the disability rights movement; representations of disability in popular culture; and intersecting ideas about disability, race, gender, and class. Same course as AMST 3863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 3873 History of Health and Social Movements in the United States (H)
Description: This course is focused on the intersection of health and social movements in the U.S. from the late 18th century to the present. In this course students explore the historical role of health and social movements, their relationship with medical theory, politics, religion, culture, and economics, how American movements mobilized, co-evolved, and changed over time, and the role of women, people of color, and marginalized communities in health and social movements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3883 History of Drugs (H)
Description: This course explores the relationship between illicit and licit drug use, drug policy, and depiction of drug use and people who use drugs, producers, sellers, policy makers, and law enforcement in the news and cultural media in the United States from 1800 to the present. The course examines the history of chemical substances that alter the body, the evolution of local and national drug policy and agencies, and how culture and society have impacted drug policies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3890 Advanced Honors Experience in History
Prerequisites: Honors Program participation and concurrent enrollment in a designated HIST course.
Description: A supplemental Honors experience in History to partner concurrently with designated upper-division HIST courses. This course adds a different intellectual dimension to the designated course(s).
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Honors Credit

HIST 3903 Introduction to the Study of History
Prerequisites: History major or consent of instructor.
Description: This course is an introduction to the study of history. It offers an overview of the development of the discipline, historiography, and the philosophy of history. Students learn about the methodology of history, types of historical problems, habits of thought necessary for the discipline, and methods such as research and writing. Previously offered as HIST 2013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 3913 History of Medicine (H)
Description: Historical growth of medicine and its relationship to the society in which it develops. Scientific problems, cultural, religious and medicine.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3953 Earthly Powers: Politics and Religion in Modern Europe
Description: Examines the persistence of religiosity in modern Europe amidst secular and political challenges from the 18th century to the present. Topics include pilgrimage, the legal separation of church and state, religious persecution in the era of the World Wars, and struggles with pluralism in the 21st c.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 3963 Modern Empires and Revolutions (H)
Description: This course examines the intersection of European imperialism and the global spread of revolutionary ideas from 1789 to the present. It will cover topics ranging from the French Revolution, intellectual revolutions in science and anthropology, colonization in Africa and Asia, the Russian Revolution of 1917, and decolonization in the wake of World War II.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 3980 Studies in History
Description: Special topics in history. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: History
Additional Fees: OSUG Study Abroad Crse Tuition fee of $550 and Study Abroad fee of $250 apply.

HIST 4033 Introduction to Public History (H)
Description: Introduction to the study and practice of Public History, including historic preservation, cultural resources management, museums, archival work, oral history and memory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4053 History and the Law
Description: The course focuses on the origins and outcomes of the most pressing legal battles in present-day society. Students explore how scholars and communities use history to shape the creation, implementation, and interpretation of laws inside and outside the United States.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 4063 Historic Preservation
Description: Focuses on the United States and examines the history and theory of the preservation movement, the legal basis for preservation of the built environment and the methodology of preservation. No credit for students with credit in HIST 5063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 4073 Digital Methods in History
Description: Introduction to the methods and practice of working with digital sources, creating digital content, basic foundations of software and metadata for digital archives, introduction to web design and database construction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 4093 Oral History: Theory and Methodology
Description: This course is an interdisciplinary introduction to oral history methodology, theory, and professional practice. It examines how oral history projects are constructed and administered and archivally managed. The course will also explore the technologies involved in the collection of interviews, the reliability of memory and the utilization of oral histories in various forms of dissemination. Students will gain practical experience in oral history interviewing and related aspects of oral history, such as transcribing, editing, archiving, and publishing oral histories. May not be used for degree credit with HIST 5093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 4103 Historical Geography of the United States (H)
Description: Examination of the spatial dynamics of frontier encounter and settlement, regional development, and cultural landscape evolution in the United States from pre-European to modern times. Same course as GEOG 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4113 Globalization and American Culture
Description: Transmission, reception, and influence of American culture in one or more of the following: Europe, Asia, Latin America, the Middle East. The cultural history of globalization and American culture. Same course as AMST 3253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History

HIST 4173 Black Intellectual History (DH)
Description: Examines the nature of black social and political thought from the early 18th to the mid-20th century and the contributions made by black intellectuals to discussions of race, citizenship and nationality. Emphasis is placed on topics of abolitionism, labor movements, populism, socialism, pan-Africanism, feminism, and the civil rights movement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 4193 The Body in American Culture (H)
Description: The body and its impact on American culture examined through a survey of diverse cultural productions and social practices. Examine the intersections of ideas of embodiment with discourse of race, class, gender, sexuality, disability, and nationalism. Same course as AMST 3653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4203 The Death Penalty in America (S)
Description: This course is designed to examine problems and issues related to the death penalty in the United States, including the history of capital punishment, important Supreme Court decisions, how the various jurisdictions (state and federal) deal with capital cases, the comparative costs of incarceration and execution, miscarriages of justice in capital issues and how the criminal justice responds to these issues. Same course as AMST 4103 and SOC 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Society & Human Behavior

HIST 4253 U.S. Foreign Relations to 1945 (H)
Description: American experience in foreign relations from colonial times to World War II.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4273 U.S. Foreign Relations Since 1945 (H)
Description: Overview of the history of U.S. foreign relations from World War II to the present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4353 American Military History (H)
Description: Civil-military relations, the military implications of American foreign policy, and the impact of technological advances on warfare since colonial times.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4363 US History through Popular and Unpopular Music (DH)
Description: This course will explore how music – including folk, rock, jazz, vaudeville, country, blues, and hip-hop – makes history and history makes music. In doing so, this course will consider music's discursive power within the arenas of American social, cultural, gender, racial, class, and political struggles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 4403 Sorcerers, Saints and Heretics: Religion in the Medieval World (H)
Description: Religious belief and practice in the medieval world, c. 500-1300. Examines the formation of major religions, the experience of religious minorities, the experience of interfaith communities, enduring superstitions and heresies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4413 Sex and Gender in the Medieval World (H)
Description: Historical attitudes toward sex and gender history in medieval Europe. Interdisciplinary approach also including cultural, social, economic and religious history. Same course as GWST 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4433 From Assassin's Creed to Witcher: Medievalism in the 21st Century World (GH)
Description: Assesses video game and film portrayals of the Middle Ages and medievalism. Through historiographical readings and critical analysis of modern media sources, examines the ways in which popular media depictions of the past weave fact with fiction, building on our common cultural narrative of "medieval-ish" worlds.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 4453 History and Film (H)
Description: Examines the ways in which historical events are made available to viewers through the medium of the cinema. The primary focus involves examining the relationship between historical events and the ways in which those events are depicted, commemorated, memorialized, remembered and misremembered in film.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4463 American Cultural History to 1865 (H)
Description: American society in nonpolitical aspects: sections, classes, national culture and social structure, immigration, education, religion, reform, world influences; ends with Civil War.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4483 American Cultural History Since 1865 (H)
Description: Continuation of HIST 4463; may be taken independently. Emphasis on nonpolitical aspects of American society and thought and on world influences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4493 Frontier in American Memory (H)
Description: Examination of the ways in which several American frontiers have been remembered, especially in popular culture. These frontiers include those informed by imagery related to Euro-American pioneers, women, people of color, and the tribal peoples of the American West.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4513 Economic History of the US (S)
Description: This course examines American economic history from the pre-colonial period to the present. Attention will be paid to important economic thinkers like Alexander Hamilton, Thomas Jefferson, W.E.B. DuBois, Henry George, Milton Friedman, and Stephanie Kelton. Another focus will be on understanding and evaluating critical debates about economic history and the differing methodologies that economists and historians utilize to shape their interpretations and arguments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Society & Human Behavior

HIST 4523 American Environmental History (H)
Description: Examination of the changing ways society (from Native American to post-industrial) has defined, interpreted, valued, and used nature.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4543 Vietnam War (GH)
Description: Origins of the Vietnamese struggle against colonialism, international policy, making of military strategy and diplomacy, anti-war movement, impact of the war on soldiers and civilians, reflections of the war in popular memory and culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 4553 Gender in America (DH)
Description: Cultural, societal and political reflections of American men and women from the colonial era to the present. Examination of the women's movements and their opponents. Exploration of changing notions of masculinity and femininity. Same course as AMST 4553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HIST 4563 Cold War (GH)
Description: International perspectives on the origins, conflicts and ideologies of the Cold War, the nuclear arms race, impact on daily life, cultural reflections, the collapse of communism, victors and losers in the post Cold War world.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 4593 America in International Perspective (H)
Prerequisites: HIST 1103 or lower-division survey course in U.S. History, any period.
Description: A transnational interpretation of American history from the colonial era to the present day. Uses a variety of interdisciplinary sources to place the history of the United States within a comparative, global framework. Same course as AMST 4593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4633 Religion in Early America (H)
Description: A study of religious life and its history in early America, beginning with its earliest European settlers, Native Americans, and continuing through the 1800s. Same course as REL 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4723 Jerusalem: City and Symbol Across Millennia (H)
Description: This course explores the history of Jerusalem as a city from the earliest records of its existence in the Ancient Near East to current events, as well as the meanings attached to Jerusalem as a symbol by Jews, Christians, and Muslims living around the world, from ancient scriptures to contemporary America.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4753 Muslim-Christian Relations (H)
Description: Exploration of commonalities and differences between Christianity and Islam, and the history of cooperation and conflict between Muslims and Christians, from Arabia in Muhammad's time to worldwide in the twenty-first century. Themes include mutual understanding and misunderstanding, conversion, rulers and subjects, discrimination, and dialogue. Same course as REL 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures

HIST 4883 History of Modern Southeast Asia (GH)
Description: This course will focus on the history of Southeast Asia from the late 18th century to the present day. We will examine how the histories of these nations have been connected politically, culturally, and economically. The course will be framed around specific themes such as global trade, religious diffusion, imperialism, ideas of "tradition", nationalism, and globalization in modern Asia. The class will deal extensively with the present-day legacy of these historical processes in the region.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: History
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

HIST 4903 Senior Seminar
Prerequisites: HIST 3903.
Description: An introduction to historical research for senior history majors. Students will be required to select, research, and write a seminar paper based on primary documents and use standard footnoting and bibliographical methods. Previously offered as HIST 3973.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: History

HIST 4980 Topics in History
Description: For students interested in pursuing either a research or a reading project. Open to students in history and to others by permission of instructor. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: History

HIST 4990 Undergraduate Internship
Prerequisites: Consent of instructor.
Description: History related internship experience designed to introduce majors to career possibilities. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: History

HIST 4993 Senior Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a faculty member, with second faculty reader and oral examination. Required for graduation with departmental honors in history.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: History
General Education and other Course Attributes: Honors Credit

HIST 5000 Thesis
Description: Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: History

HIST 5021 Teaching History at the College Level
Prerequisites: Graduate standing or permission of instructor required.
Description: Survey of objectives and methods in the teaching of history at the college level.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: History

HIST 5023 Historical Methods
Prerequisites: Graduate student standing or permission of instructor required.
Description: Methods of historical research and the writing of history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: History

HIST 5030 Public History Internship
Prerequisites: Graduate student standing or permission of instructor required.
Description: Supervised practical experience in public history. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: History

HIST 5033 Introduction to Public History
Prerequisites: Graduate student standing or permission of instructor required.
Description: Introduction to theory and practice of public history. Includes public history careers, public history as a field in the discipline, and the public perception and use of the past.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: History

HIST 5053 Museum Studies
Prerequisites: Graduate student standing or permission of instructor required.
Description: Introduction to museum theory and practice, especially as it pertains to history museums and sites. No credit for students with credit in HIST 4063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: History

HIST 5063 Historic Preservation
Prerequisites: Graduate student standing or permission of instructor required.
Description: Focuses on the United States and examines the history and theory of the preservation movement, the legal basis for preservation of the built environment, and the methodology of preservation. No credit for students with credit in HIST 4063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: History

HIST 5073 Digital Methods in History
Prerequisites: Graduate student standing or permission of instructor required.
Description: Introduction to the methods and practice of working with digital sources, creating digital content, basic foundations of software and metadata for digital archives, introduction to web design and database construction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: History

HIST 5093 Oral History: Theory and Methodology
Description: This course is an interdisciplinary introduction to oral history methodology, theory, and professional practice. It examines how oral history projects are constructed and administered and archivally managed. The course will also explore the technologies involved in the collection of interviews, the reliability of memory and the utilization of oral histories in various forms of dissemination. Students will gain practical experience in oral history interviewing and related aspects of oral history, such as transcribing, editing, archiving, and publishing oral histories. May not be used for degree credit with HIST 4093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: History

HIST 5120 Reading Seminar in American History
Prerequisites: Graduate student standing or permission of instructor required.
Description: Historiographical and bibliographical study of special areas of American history. Offered for fixed credit, 3 credit hours, maximum of 24 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: History

HIST 5140 Reading Seminar in European and World History
Prerequisites: Graduate student standing or permission of instructor required.
Description: Historiographical and bibliographical study of special areas of European and World history. Offered for fixed credit, 3 credit hours, maximum of 24 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: History

HIST 5220 Research Seminar in American History
Prerequisites: Graduate student standing or permission of instructor required.
Description: Research in selected problems in American history. Offered for fixed credit, 3 credit hours, maximum of 24 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: History

HIST 5240 Research Seminar in European and World History
Prerequisites: Graduate standing or permission of instructor required.
Description: Research in selected problems in European and World history. Offered for fixed credit, 3 credit hours, maximum of 24 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: History

HIST 6000 Doctoral Dissertation
Prerequisites: Admission to candidacy.
Description: Advanced research in history. Offered for variable credit, 1-19 credit hours, maximum of 30 credit hours.
Credit hours: 1-19
Contact hours: Contact: 1-19 Other: 1-19
Levels: Graduate
Schedule types: Independent Study
Department/School: History

HIST 6023 Historiography
Prerequisites: Graduate student standing or permission of instructor required.
Description: Major writers of history, historical schools and patterns of developments in historical interpretation from the earliest times to present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: History

HIST 6100 Directed Readings in History
Prerequisites: Graduate student standing or permission of instructor required.
Description: Readings in selected topics in history to develop factual knowledge, analytical skills, and interpretive understanding. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: History

HIST 6130 Graduate Studies in History
Prerequisites: Graduate student standing.
Description: Graduate-level work under taken in association with upper-division lecture courses. Added component ordinarily entails a graduate-level research paper or historiographical essay of substantial length. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: History

Honors (HONR)

HONR 1000 Introductory Honors Topics
Prerequisites: Introductory Honors Topics.
Description: Introduction to topics in various disciplines by faculty from the undergraduate colleges for freshman and sophomore students in the University Honors College. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 1010 Introductory Honors Seminar in Social Sciences
Prerequisites: Honors College participation.
Description: Introduction to topics in social science disciplines by faculty from the undergraduate colleges for freshman and sophomore students in the University Honors College. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 1020 Introductory Honors Seminar in STEM
Prerequisites: Honors College Participation.
Description: Introduction to topics in STEM disciplines by faculty from the undergraduate colleges for freshman and sophomore students in the University Honors College. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 1030 Introductory Honors Seminar in Arts and Humanities
Prerequisites: Honors College participation.
Description: Introduction to topics in arts and humanities disciplines. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 1093 Patterns and Symmetry in Mathematics (Q)
Prerequisites: Honors Program participation.
Description: Tessellations, or repetitive patterns in the plane and in space, and the symmetries, or rigid motions, that preserve them. Illustrations from art, architecture, science, and nature. For the Honors student.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Analytical & Quant Thought, Honors Credit

HONR 1103 The US Presidency (as seen on TV) (S)
Prerequisites: Honors College participation.
Description: This course will focus on the relationship between the U.S. Presidency and the media, starting from the Roosevelt administration. The course also examines the unique communication opportunities Presidents (and those seeking the office) can utilize, from news conferences to debates. Special consideration will be given to the impact of new and social media and whether it is diminishing the impact of television on coverage of the office.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit, Society & Human Behavior

HONR 1113 Active Aging for L.I.F.E (DS)
Prerequisites: Honors College participation.
Description: Active aging allows people to realize their potential for physical, social and mental well-being throughout the life course. In this honors seminar you will acquire a great deal of information on a wide range of topics in order to build your personal understanding of the relationships between Longevity, Independence, Fitness and Engagement for active aging.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Diversity, Honors Credit, Society & Human Behavior

HONR 1123 The Art of Mindful Living (H)
Prerequisites: Honors College Participation.
Description: Meditation and mindfulness are becoming ever-more relevant and important in our busy modern world and life. This course presents the basics for both understanding and practicing mindfulness so to live a more peaceful and fulfilled life.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 1133 Place-As-Text Seminar (H)
Prerequisites: Honors College Participation.
Description: Place-as-Text™ is a curriculum developed and taught by honors colleges and programs around the country. These courses focus on a place, often a city, and explore life and culture there through immersive, experience-based activities. Students will learn to observe closely, "read" what they encounter and experience, and independently analyze how cultural ideas create real living conditions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 1153 Sex in College Culture Honors (S)
Prerequisites: Honors College Participation.
Description: Within college culture, individual identity and behavior, social expectations, and campus policies coalesce to influence the sexual experiences of college students. This course examines gender; sexual scripts; dating, hooking up, and relationships; sexual orientation; Greek life; and sexual violence as confined within and ultimately shaped by college culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit, Society & Human Behavior

HONR 1203 Mapping Mental Illness (DS)
Prerequisites: Honors College Participation.
Description: This course examines mental illness from a sociological perspective, focusing on its social production, distribution, and consequences across time and place. Students analyze how race, class, gender, sexuality, age, location, and ability shape mental health experiences and access to care. Through historical and contemporary perspectives, the course explores stigma, institutions, and systems of power that produce and reproduce inequality in mental health outcomes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Diversity, Society & Human Behavior

HONR 1503 Integrative Biology: The Mind (N)
Prerequisites: Honors College participation.
Description: The Mind connects biopsychology to real world behavior and shows how millions of years of cognitive evolution have shaped how we see the world and how we make decisions based on our perceptions. This is a natural science course that addresses important contemporary social issues and will be uniquely effective at helping prepare students to not only be successful young academics, but conscientious thoughtful members of society as well.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit, Natural Science Reasoning

HONR 2013 Honors Law and Legal Institutions (S)
Prerequisites: Honors Program participation.
Description: An introduction to law in American society with reference to its European origins; its political, economic, psychological, and sociological dimensions; and the substantive law in selected areas. Introduction to legal reasoning and legal research techniques. For the Honors student.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit, Society & Human Behavior

HONR 2023 Constitutional Dimensions of Diversity (DS)
Prerequisites: Honors College participation.
Description: An introduction to American constitutional law as it relates to diversity issues through the study of landmark Supreme Court decisions affecting the rights of various minorities. Introduction to legal research techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Diversity, Honors Credit, Society & Human Behavior

HONR 2063 Ethical Issues Across Cultural Perspectives (H)
Prerequisites: Honors Program participation.
Description: An introduction to reasoned methods of evaluating ideas and arguments as they pertain to ethical issues from a global perspective. Concepts including obligation, justice, and ethnicity from Lao Tzu, Maimonides, Kant, and Indian wisdom stories. Environmentalism, technology, and cultural knowledge. Team-taught by faculty from appropriate disciplines in a lecture and discussion format. For the Honors student.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 2073 The Story of Lizzie Borden: Axe Murder in American Culture (DH)
Prerequisites: Honors College participation.
Description: In 1892, Lizzie Borden was accused of killing her father and stepmother with an axe. She was eventually acquitted, but her story had captured the American cultural imagination. This course examines representations of the Lizzie Borden story in news reports, true crime, short fiction, poems, novels, plays, a ballet, and multiple films, exploring how changing concepts of gender shape the way in which the story is told in different media and in different moments in American history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Diversity, Human Heritage & Cultures, Honors Credit

HONR 2083 Honors Flash Fiction: A Tiny Genre with a Big Impact (DH)
Prerequisites: Honors College participation.
Description: This honors seminar explores diversity in contemporary American culture through the lens of flash fiction; very short stories.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Diversity, Human Heritage & Cultures, Honors Credit

HONR 2093 Tornadoes in American Culture (H)
Prerequisites: Honors College participation.
Description: This honors seminar will explore how tornadoes shape regional identities, produce diverse narratives, and influence art, literature and film.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 2303 Magic Rings Symbol and Allegory (H)
Prerequisites: Honors College participation.
Description: A study of magic rings as symbols in Western philosophy, literature, and music. Works will include Plato's Republic, Wagner's Ring on the Nibelung, and Tolkien's Lord of the Rings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 2313 Don Juan: His Lives and Times (H)
Prerequisites: Honors College participation.
Description: A cultural history of the Don Juan figure in literature and music from the 17th century to the present. Works studied include those by Tirso de Molina, Molière, Mozart, Pushkin, Byron, Shaw, and Walcott.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 2323 Witches, Murderers, Pirates, and Thieves: Early American Crime Narratives (H)
Prerequisites: Honors College participation.
Description: Tales of crimes – real, alleged and fictional – were very popular with readers in the 17th, 18th and 19th century Atlantic world, as they are today. As we work our way through tales of sensational crime, we will think about the cultural work that crime stories do; that is, we will consider how they explore ideas about human nature, civil society, authority, transgression, and the origins of evil.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 2333 Tattoos as Text (DH)
Prerequisites: Honors College Participation.
Description: Whether viewed as the mark of a criminal, sacred art, or something in between, tattoos have been met with scorn and reverence throughout human history. In this honors seminar, we will explore the history, art, and meaning of tattoos to understand the significance they hold for different peoples and cultures through readings, films, and discussion. Assuming no previous knowledge, this course is designed for students from all majors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

HONR 2413 The Ancient World (H)
Prerequisites: Honors Program participation.
Description: Interdisciplinary study of art, history, philosophy and literature from ancient Greece and Rome as well as the religious ideas central to Judaism and Christianity. Team-taught by faculty from appropriate disciplines in a lecture and discussion format. For the Honors student. No degree credit for students with prior credit in HONR 2113. Previously offered as HONR 1013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 2423 The Middle Ages and Renaissance (H)
Prerequisites: Honors Program participation.
Description: Interdisciplinary study of art, history, philosophy and literature from the Middle Ages to the early Renaissance. Team-taught by faculty from appropriate disciplines in a lecture and discussion format. For the Honors student. May not be used for degree credit with HONR 2113. Previously offered as HONR 1023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 2433 The Early Modern World (H)
Prerequisites: Honors Program participation.
Description: Interdisciplinary study of art, history, philosophy and literature from the late Renaissance to the mid-19th century. Team-taught by faculty from appropriate disciplines in a lecture and discussion format. For the Honors student. May not be used for degree credit with HONR 2223. Previously offered as HONR 1033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 2443 Honors Romanticism to Postmodernism: 19th & 20th Centuries (H)
Prerequisites: Honors Program participation.
Description: Interdisciplinary study of art, history, philosophy and literature from the 19th century to the present. Team-taught by faculty from appropriate disciplines in a lecture and discussion format. For the Honors student. May not be used for degree credit with HONR 2223. Previously offered as HONR 1043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 2503 Confronting Pseudoscience
Prerequisites: Honors College participation.
Description: Using the tools of evidential reasoning and critical thinking this course examines the difference between a true scientific endeavor and pseudoscientific belief systems. In doing so it provides students with an understanding of scientific reasoning and its application in everyday life while exposing students to content from a range of the natural sciences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 2514 Honors Scientific Inquiry
Prerequisites: Honors Program participation.
Description: A team-taught interdisciplinary course dealing with philosophy of science and the application of the scientific method in the natural and social sciences. Selected topics that involve interdisciplinary scientific inquiry. For the Honors student.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 2890 Introductory Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental introductory honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 3000 Advanced Honors Topics
Prerequisites: Honors Program participation, junior standing.
Description: Topical study in various disciplines taught by faculty from the undergraduate colleges for junior and senior students in the University Honors Program. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 3010 Advanced Honors Seminar in Social Sciences
Prerequisites: Honors College participation.
Description: Advanced investigation of topics in social science disciplines for the Honors College. Offered for variable credit, 1-3 credit hours, maximum of 15 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 3013 Holocaust Studies Seminar (GH)
Prerequisites: Junior standing and Honors College participation.
Description: An interdisciplinary study of one of the great atrocities of human history – the Holocaust. Addresses questions of good and evil, divinity and humanity, and truth and responsibility that arise from this event. For the Honors Student.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit, International Dimension

HONR 3020 Advanced Honors Seminar in STEM
Prerequisites: Honors College participation.
Description: Advanced investigation of topics in STEM disciplines in the Honors College. Offered for variable credit, 1-3 credit hours, maximum of 15 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 3023 Contemporary Cultures of the Western World: Honors (GH)
Prerequisites: Honors College participation.
Description: Interdisciplinary examination of one or more cultures of Europe and/or the western hemisphere. The course will explore characteristics of "Western" cultures and their manifestations in modern societies. Topics of study include diversity in social and cultural practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit, International Dimension

HONR 3030 Advanced Honors Seminar in Arts and Humanities
Prerequisites: Honors College participation.
Description: Advanced investigation of topics in arts and humanities disciplines in the University Honors College. Offered for variable credit, 1-3 credit hours, maximum of 15 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit
Additional Fees: OSUG Study Abroad Crse Tuition fee of $550 and Study Abroad fee of $250 apply.

HONR 3033 Contemporary Cultures of the Non-Western World: Honors (GS)
Prerequisites: Honors College participation.
Description: Interdisciplinary study of contemporary cultures of non-western world including lifestyle, housing and food. Team-taught by faculty from appropriate disciplines in a lecture and discussion format.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit, International Dimension, Society & Human Behavior

HONR 3043 Contemporary Cultures of the United States (DS)
Prerequisites: Honors Program participation.
Description: Interdisciplinary study of racial and ethnic diversity in the United States in context of social, political, and economic systems to promote knowledge of racial and ethnic minority groups in the United States and appreciation of their contributions to the mosaic of contemporary American life. Team-taught by faculty from appropriate disciplines in a lecture and discussion format.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Diversity, Honors Credit, Society & Human Behavior

HONR 3053 Biology, Race, and Gender: Honors (DH)
Prerequisites: Junior standing and Honors College participation.
Description: Critical interdisciplinary investigation of relationships between biological theory (especially Darwinism) and social and ethical issues. Attention to views of alleged biological aspects of perceived racial and gender differences and attempts to implement these views socially, legally, and medically in the United States and elsewhere.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Diversity, Human Heritage & Cultures, Honors Credit

HONR 3063 Jane Austen: Life, Art, and Influence (H)
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: An author who continues to speak to generations of readers centuries after her death, Jane Austen wrote a half dozen novels that became classics within a few decades of their creation. This course examines the distinct features of the writing that accounts for her significant accomplishments - not just on the development of the novel but her influence on those novelists who followed her.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Human Heritage & Cultures, Honors Credit

HONR 3890 Advanced Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental advanced honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated course(s).
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 3990 Honors Thesis Preparation
Prerequisites: Honors College participation, Senior Standing.
Description: A guided preparation course for students completing the requirements for college or departmental honors awards leading to an honors thesis, project or report under the direction of a faculty member from one of the undergraduate colleges, with a second faculty reader. This preparation course is typically taken the semester before HONR 4993. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

HONR 4993 Honors Creative Component
Prerequisites: Honors Program participation, senior standing.
Description: A guided creative component for students completing the requirements for college or departmental honors awards leading to an honors thesis, project or report under the direction of a faculty member from one of the undergraduate colleges, with a second faculty reader and oral examination.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Honors College
General Education and other Course Attributes: Honors Credit

Horticulture (HORT)

HORT 1011 Horticulture Discovery
Description: Introduction to the horticulture discipline and potential career opportunities. Develop student connections with the industry as well as OSU Horticulture students, faculty and staff.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 1013 Principles of Horticultural Science (LN)
Description: Basic physical and physiological processes responsible for plant dormancy, growth, flowering, fruiting, and senescence with respect to the science and art of production, cultivation, utilization, and/or storage of horticultural plants. Current research associated with various horticultural commodity groups.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 2010 Internship in Horticulture or Landscape Management
Prerequisites: 24 credit hours and consent of adviser.
Description: Supervised work experience with approved public and private employers in horticulture, landscape management, or related fields. Credit will not substitute for required courses. Graded on a pass-fail basis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 2513 Herbaceous Plant Materials
Description: Identification, cultural requirements, and use of ornamental garden and indoor herbaceous plants.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 2613 Woody Plant Materials
Description: Identification, cultural requirements, and use of ornamental woody plants including deciduous and evergreen trees, shrubs and vines.00 per credit hour applies
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 3011 Professional Development for Careers in Horticulture
Prerequisites: HORT 1011
Description: Expectations and opportunities for academic and career success in horticulture. Emphasis placed on professionalism, goal setting, and the development of essential academic and technical skills. Exploration of horticulture career paths, engagement with industry professionals, and building a foundation for lifelong learning and career readiness.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 3013 Arboriculture
Prerequisites: HORT 2613 or NREM 2134 and SOIL 2124.
Description: Theory and practice of selecting, planting and maintaining trees, shrubs and vines in the landscape. Previously offered as HORT 3014.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

HORT 3084 Plant Propagation
Prerequisites: HORT 1013 or PLNT 1213
Description: Principles and practices involved in propagation of plants. Anatomical, morphological and physiological aspects of sexual and asexual methods of regeneration and their importance.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

HORT 3113 Greenhouse Management
Prerequisites: HORT 1013 or PLNT 1213
Description: Commercial greenhouse operation with emphasis on floricultural plant production aspects; environment, growing media, fertilizers and application methods, watering, pest and disease control, chemical growth regulators, production costs.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT 3113 Field Trip fee of $20 and HORT/LA Facil, Equip, Lab fee of $12 per credit hour apply.

HORT 3153 Turf Management
Description: Selection, establishment and maintenance of grass species and other plant materials for special use areas.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 3213 Fruit and Nut Production
Prerequisites: BIOL 1113 and BIOL 1111 or PBIO 1404.
Description: Commercial production of fruits and nuts, with emphasis on pecan, apple, peach, strawberry, blackberry and blueberry. A two-day field trip is required.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

HORT 3253 Personnel and Financial Management for Horticulture
Prerequisites: HORT 1013 or LA 1013 and one upper division HORT or LA course.
Description: Preparing and executing an operational budget in a horticultural service industry and methods for maintaining an effective work force.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 3433 Commercial Vegetable Production
Description: Commercial production and marketing of vegetable crops. May not be used for degree credit with HORT 5433.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 3513 Landscape Irrigation
Description: Basics of landscape irrigation with an emphasis on residential irrigation design, maintenance and installation.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

HORT 3613 Bidding and Estimating
Prerequisites: ACCT 2003 or ACCT 2103.
Description: Budgeting, bid preparation and job cost estimation for landscape related industries including golf course budgeting, overhead and labor budgeting, and profitable pricing. Previously offered as HORT 3612.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 3713 Urban Horticulture Production
Prerequisites: HORT 1013 or PLNT 1213.
Description: Principles and production of crops for public or community practices with emphasis on production associated with hydroponics, raised beds, containers, controlled environments, roof tops, high tunnels, and farmers markets.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

HORT 3833 Hydroponics and Soilless Crop Production
Description: Basics of soilless production with emphasis on hydroponics and aquaponic production of vegetables and cut flowers.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

HORT 4010 Special Topics in Horticulture
Description: New and emerging areas of study in Horticulture. Offered for variable credit, 1-4 credit hours, maximum of 9 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 4011 Horticulture Careers Success
Prerequisites: HORT 3011
Description: Discussion of the current status of horticulture careers with emphasis on graduate education, industry jobs, and post-graduation career planning. Guest lectures and panels with professionals, and preparation of job documents for employment in horticulture and related fields.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 4053 International Experience in Horticulture (G)
Description: Participation in international travel to develop an understanding of different horticultural systems and technologies used outside the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
General Education and other Course Attributes: International Dimension

HORT 4133 Temperature Stress Physiology
Prerequisites: CHEM 1215, and BIOL 1114 or (BIOL 1113 and BIOL 1111) or PBIO 1404
Description: Effects of heat, chilling and freezing stress on plants. Responses to temperature extremes at the molecular to whole plant levels with emphasis on mechanisms of injury and resistance. Same course as PLNT 4133. May not be used for degree credit with HORT 5133 and PLNT 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 4223 Small Farms Crop Production and Management
Description: Principles, planning, methods, and techniques that encompass small farm operation and management. With a focus on vegetables and other local farmer's market crops and sectors, content will include small farm crop production, business model development and enterprise management. May not be used for degree credit with HORT 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 4453 Turfgrass Physiology and Ecology
Prerequisites: HORT 3153, and BIOL 1113 and BIOL 1111 or PBIO 1404.
Description: A study of the relationship between turf physiology and modern turf management practices. Concepts of stand ecology with emphasis on species dominance in stressful environments. May not be used for Degree Credit with HORT 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 4493 Athletic Field Management
Prerequisites: HORT 3153.
Description: Principles, practices and challenges associated with natural turf- covered athletic field management; field construction, maintenance and evaluation of playing surface quality; soil physical properties influencing management and field use, construction and maintenance materials specification, and traction, hardness and ball response factors. Offered in combination with HORT 5493. No credit for both HORT 4493 and HORT 5493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 4543 Sustainable Nursery Production
Prerequisites: HORT 1013
Description: Sustainable commercial production of field- and container-grown woody ornamental crops. Previously offered as HORT 3544. May not be used for degree credit with HORT 5543.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

HORT 4713 Public Garden Management
Description: Issues and methods in public garden management, including database management of collections, conservation of native species, grant writing, volunteer coordination, computerized mapping systems, master planning, and other topics pertaining to a career in public horticulture. Field trips required. May not be used for degree credit with HORT 5713.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 4773 Applied Landscape Planning
Description: Concepts of landscape management, design and construction including hand graphics and AutoCad with an emphasis on residential landscape. No credit for students in the landscape architecture or landscape management programs. Previously offered as HORT 4774.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

HORT 4901 Horticulture in Controlled Environments Laboratory
Prerequisites: HORT 4903 or concurrent enrollment.
Description: Hands-on experiences and virtual field trips designed to reinforce principles discussed in HORT 4903, and to develop skill sets important to successful implementation of horticultural practices in controlled environments. May not be used for Degree Credit with HORT 5901.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Hort & Landscape Arch

HORT 4903 Horticulture in Controlled Environments
Prerequisites: CHEM 1215 and HORT 3113.
Description: Designing, constructing, monitoring, and manipulating controlled environments for efficient horticultural production. May not be used for degree credit with HORT 5903.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 4933 Principles of Sustainable and Organic Horticulture
Prerequisites: HORT 1013.
Description: Principles and practices of sustainable, organic, and alternative horticultural management systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: CASNR Outreach Crse Tuition fee of $189.10 per credit hour applies.

HORT 4943 International Horticulture
Prerequisites: HORT 1013.
Description: Overview of the horticulture industry worldwide. Export, marketing, and international trade issues in a global horticulture context. Individual country analyses of specific fruit, vegetable and ornamental crops. May not be used for Degree Credit with HORT 5943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 4953 Plant Growth and Development
Prerequisites: HORT 1013 and PBIO 1404.
Description: Plant embryogenesis and organogenesis; growth and development of shoots and reproductive structures; plant developmental processes including shoot expansion and dormancy as influenced by temperature, light, and other environmental factors. May not be used for Degree Credit with HORT 5953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour and CASNR Outreach Crse Tuition fee of $189.10 per credit hour apply.

HORT 4963 Horticulture Physiology
Prerequisites: CHEM 1215, and BIOL 1114 or (BIOL 1113 and BIOL 1111) or PBIO 1404.
Description: Physiology of horticultural plants, including water relations, respiration, photosynthesis, and growth and development. May not be used for degree credit with HORT 5963.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 4973 Sustainable Landscape Management
Prerequisites: HORT 1013 or LA 1013.
Description: The ecological principles and landscape resources supporting decision-making for sustainable landscape management. Retrofits of existing development for enhanced sustainability, including equipment selection, stormwater management, use of successional landscapes, permaculture, and organic methods. May not be used for Degree Credit with HORT 5973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: CASNR Outreach Crse Tuition fee of $189.10 per credit hour and HORT/LA Facil, Equip, Lab fee of $12 per credit hour apply.

HORT 4990 Horticultural Problems
Prerequisites: Consent of instructor.
Description: Study of horticultural problems under the supervision of a faculty member. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 5000 Master's Research and Thesis
Description: Research on thesis problems required of master's degree candidates. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 5020 Graduate Seminar
Prerequisites: Graduate standing.
Description: Proposal and results seminars for graduate programs. Offered for fixed credit, 1 credit hour, maximum of 2 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 5110 Advanced Horticultural Problems
Description: Selected research problems in horticulture, floriculture, landscape design; nursery production, olericulture and pomology. Offered for variable credit, 1-12 credit hours, maximum of 20 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 5133 Temperature Stress Physiology
Description: Effects of heat, chilling and freezing stress on plants. Responses to temperature extremes at the molecular to whole plant levels with emphasis on mechanisms of injury and resistance. Same course as PLNT 5133. May not be used for degree credit with PLNT 4133 and HORT 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5223 Advanced Small Farms Crop Production and Management
Description: Principles, planning, methods, and techniques that encompass small farm operation and management. With a focus on vegetables and other local farmer's market crops and sectors, content will include small farm crop production, business model development and enterprise management. May not be used for degree credit with HORT 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 5233 Experimental Horticulture
Description: Methods of conducting research with horticultural crops, including organization and plans, field plot techniques and analysis of data.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5293 Plant Response to Water Stress
Prerequisites: BIOC 3653 and PBIO 4463.
Description: Physiological ramifications of water deficit stress on cells, tissues, plants and canopies. Discussion of the soil/plant/atmosphere continuum, and avoidance and tolerance mechanisms leading to drought resistance. Photosynthesis, transpiration, and water-use efficiency and their relationship to biomass accumulation and crop yield. Same course as PLNT 5293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5403 Commercial Vegetable Production
Prerequisites: HORT 1013, SOIL 2124 and PBIO 1404.
Description: Commercial production and marketing of vegetable crops. May not be used for degree credit with HORT 3433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5423 Flowering and Fruiting in Horticultural Crops
Prerequisites: PBIO 3463.
Description: Environmental, chemical and cultural factors affecting the flowering and fruiting of horticultural crops. Previously offered as HORT 5422.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5433 Postharvest Physiology
Prerequisites: BOT 3463 and BOT 3460.
Description: Physiological causes for post-harvest changes in horticultural crops (ripening and senescence) and the basis for certain postharvest treatments (precooling at harvest, controlled atmosphere storage, refrigeration, and packaging techniques). Commodity-specific postharvest phenomena.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 5443 Basic Laboratory Experimentation
Description: Principles and theory of safe laboratory practice and experimentation. Techniques for developing and optimizing plant sample acquisition, extraction and analysis protocols. Theory of operation and maintenance of common laboratory instrumentation (pH measurement, solid and liquid analytical measurement, temperature measurement, spectrophotometry, HPLC, GC). Laboratory provides hands-on experience for integrated protocol development and instrument use.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 5453 Turfgrass Physiology and Ecology
Prerequisites: HORT 3153, PBIO 1404.
Description: A study of the relationship between turf physiology and modern turf management practices. Concepts of stand ecology with emphasis on species dominance in stressful environments. May not be used for degree credit with HORT 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5493 Athletic Field Management
Prerequisites: HORT 3153.
Description: Principles, practices and challenges associated with natural turf- covered athletic field management; field construction, maintenance and evaluation of playing surface quality; soil physical properties influencing management and field use, construction and maintenance materials specification, and traction, hardness and ball response factors. Offered in combination with HORT 4493. No credit for both HORT 4493 and HORT 5493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5543 Sustainable Nursery Production
Description: Sustainable commercial production of field and container grown woody ornamental crops. No credit for both HORT 4543 and HORT 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5553 Scientific Writing in Horticulture
Description: Foundational principles and practices of scientific writing and research communication as related to horticulture and plant sciences. Students will explore the structure, style, and expectations of academic and scientific genres, while developing practical skills in writing, revising, and presenting research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5713 Public Garden Management
Prerequisites: HORT 1013.
Description: Issues and methods in public garden management, including database management of collections, conservation of native species, grant writing, volunteer coordination, computerized mapping systems, master planning, and other topics pertaining to a career in public horticulture. Field trips required. May not be used for degree credit with HORT 4713.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

HORT 5901 Horticulture in Controlled Environments Laboratory
Prerequisites: HORT 4903 or concurrent enrollment.
Description: Hands-on experiences and virtual field trips designed to reinforce principles discussed in HORT 4903, and to develop skill sets important to successful implementation of horticultural practices in controlled environments. May not be used for Degree Credit with HORT 4901.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Hort & Landscape Arch

HORT 5903 Horticulture in Controlled Environments
Prerequisites: CHEM 1215 and HORT 3113.
Description: Designing, constructing, monitoring, and manipulating controlled environments for efficient horticultural production. May not be used for degree credit for HORT 4903.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5943 International Horticulture
Prerequisites: HORT 1013.
Description: Overview of the horticulture industry worldwide. Export, marketing, and international trade issues in a global horticulture context. Individual country analyses of specific fruit, vegetable and ornamental crops. May not be used for Degree Credit with HORT 4943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

HORT 5953 Plant Growth and Development
Description: Plant embryogenesis and organogenesis; growth and development of shoots and reproductive structures; plant development processes including shoot expansion and dormancy as influenced by temperature, light, and other environmental factors. May not be offered for degree credit with HORT 4953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour and CASNR Outreach Crse Tuition fee of $230.45 per credit hour apply.

HORT 5963 Horticulture Physiology
Prerequisites: CHEM 1215 and BIOL 1114 or (BIOL 1113 or BIOL 1111).
Description: Physiology of horticultural plants, including water relations, respiration, photosynthesis, and growth and development. Offered in combination with HORT 4963. May not be used for degree credit with HORT 4963.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

HORT 5973 Sustainable Landscape Management
Description: The ecological principles and landscape resources supporting decision-making for sustainable landscape management. Retrofits of existing development for enhanced sustainability, including equipment selection, stormwater management, use of successional landscapes, permaculture, and organic methods. No credit for both HORT 4973 and HORT 5973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: CASNR Outreach Crse Tuition fee of $230.45 per credit hour applies.

HORT 6000 Doctoral Rsch & Dissertation
Description: Research on dissertation problems required of PhD candidates in multidisciplinary programs. Offered for variable credit, 1-12 credit hours, maximum of 30 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

Hospitality & Tourism Management (HTM)

HTM 1103 Introduction to Hospitality and Tourism (S)
Description: Study of lodging, food and beverage, events, tourism and other service industries from a global perspective. Emphasizes development and history, ethical issues, and professional opportunities. Previously offered as HRAD 1103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
General Education and other Course Attributes: Society & Human Behavior

HTM 1113 Fundamentals of Culinary Production (S)
Description: Food production as related to theories and techniques of foods, their preparation fundamentals using a scientific and experiential approach. Focus on gastronomic basics, national safety and sanitation standards, organizational skills for food operations, standardized recipe and equipment understanding, quality control. Teamwork, communication skills and problem-solving strategies as related to food production environments. Previously offered as HRAD 1113.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hospitality & Tourism Mgmt
General Education and other Course Attributes: Society & Human Behavior

HTM 2021 Food Safety and Responsible Service of Alcohol
Description: Principles and theory of food and beverage safety, prevention of foodborne illness outbreaks, and ensuring public health and consumer safety; includes the NRA ServSafe exam and Oklahoma responsible service of alcohol training. Previously offered as HRAD 2021.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 2563 Culture, Food, and Travel (G)
Description: Exploration of people, cultures, traditions, and places through food and beverage focused travel. Local and global perspectives for understanding the increasing role that food and drink plays in society and travel. The interrelationships of locale, hospitality, economics, and the environment in creating food and drink destinations. Previously offered as HRAD 3563 and HTM 3563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
General Education and other Course Attributes: International Dimension

HTM 2643 Hotel and Lodging Operations
Description: The organization and administration of hotel and lodging operations including front desk, housekeeping, sales & marketing, food & beverage, and other departments. Exploration of Property Management Systems and related operations management technology. Previously offered as HRAD 3363 and HRAD 2643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 2664 Restaurant Operations
Prerequisites: HTM 1113 and HTM 2021.
Description: Experiential learning in processes and complexities of food production and front of the house service in a commercial setting with a focus on quality and profitability. Demonstrate proficiency in Point of Sale, reservation systems, and related restaurant operations/ management technology and competence in principles of food cost, menu pricing, and staffing. Documentation of the successful completion of the manager version of the ServeSafe Exam required. Previously offered as HRAD 2665 and HTM 2665.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 5 Contact: 7
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hospitality & Tourism Mgmt

HTM 2900 Hospitality and Tourism Undergraduate Research
Description: An introduction to research in hospitality and tourism including a guided research project under the direction of a faculty member. Previously offered as HRAD 2900. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 3101 Introduction to Beers of the World
Prerequisites: Proof of minimum age 21.
Description: Overview of the history of beer, brewing processes/ ingredients, developing taste profiles for different styles of beer, food pairing, and current trends in today's beer industry.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
Additional Fees: HTM 3101 Consumable Mat fee of $20 applies.

HTM 3113 People-Centric Business Skills
Description: This course emphasizes the universal applicability of hospitality-driven interpersonal skills in business contexts. Students will develop emotional intelligence, communication, and problem-solving abilities while learning to lead with empathy and integrity. Through practical applications, students will gain knowledge and skills to excel in today's service-oriented business world. May not be used for degree credit with BADM 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3120 Special Events Management
Prerequisites: Instructor permission.
Description: Study of special event planning, implementation and evaluation. The interaction between the staff, customer, guests, contractors, and others necessary to implement a successful special event. Additional focus on catering through hotels, restaurants or private companies. Previously offered as HRAD 4421 and HRAD 3120. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 3123 Event Planning and Production
Description: Planning, and leadership of events. Focus on working with teams, marketing strategies, budget management, program planning and integration of entertainment production into events. Previously offered as HRAD 3123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3201 Introduction to Mixology
Prerequisites: Proof of minimum age 21.
Description: An introduction to the art and science of mixology in creating well balanced, flavorful, and unique cocktails. Examination of the role that mixed drinks play in executing a professional and profitable bar operation.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
Additional Fees: HTM 3201 Consumable Mat fee of $25 applies.

HTM 3223 International Travel and Tourism (G)
Description: The study of international travel and tourism for business and pleasure. The management of travel and tourism concepts in the hospitality industry and related businesses around the world. International travel industry financial management, technology, economic planning and policy formulation. Previously offered as HRAD 4223 and HRAD 3223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
General Education and other Course Attributes: International Dimension

HTM 3243 The Business of Tourism
Description: All aspects of the tourism business including segments of global tourism, business practices, economic impact, management as well as marketing strategies and processes. Previously offered as HRAD 2243 and HTM 2243. Same course as HTM 2243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3263 Beverage Business Management
Description: An overview of different types of beverage operations, systems, products, and responsible alcohol service. Emphasis on managerial decisions in developing & operating a facility serving alcohol beverages including facility requirements, feasibility, and marketing strategies. Previously offered as HRAD 4263 and HTM 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3283 Financial Analysis in Hospitality and Tourism
Prerequisites: ACCT 2003.
Description: Focus on the Uniform System of Accounts for hotels and restaurants, and on the analysis, presentation, and interpretation of hospitality and tourism industry financial data that affect internal decision-making, budgeting, and financial planning. Previously offered as HRAD 2283 and HTM 2283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3301 Introduction to Coffee & Tea
Description: Foundations of the original characteristics of coffee and tea from seed and leaf to cup. Discover the language for sensory analysis, assess specialty varietals, and the essential elements of brewing.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3443 Hospitality and Tourism Industry Internship
Prerequisites: BADM 2111 and instructor permission.
Description: Supervised experience in an approved work situation related to a future career in the hospitality, travel and tourism, beverage management, event and/or entertainment, or property management industries. Management and supervisory experience in multiple aspects of the organization. Previously offered as HRAD 3443.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 3473 Managing The Built Environment
Description: Planning and management of the built environment with a focus on hospitality, commercial, retail, and multi-family residential venues including outdoor elements, hardscaping, parking systems and green-scaping. Includes integration and coordination of guest services with built environment management processes, maintenance and renovation, insourcing and outsourcing services, emergency/disaster planning, accessibility requirements, and alternative energy sources. Previously offered as HRAD 3473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3543 Resort Development and Management
Prerequisites: HTM 2643.
Description: Exploration of planning, development, and management of resort operations. Topics include front office, revenue management, food and beverage, finance, marketing, security and risk management, and convention & meeting services. Property management inclusive of energy, facilities, engineering, and equipment are also covered. Previously offered as HRAD 3943 and HRAD 3543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3573 Franchising
Description: Study of franchising from the perspective of the franchisor and franchisee. Focus on contemporary issues and trends in franchise concept development, franchisor-franchisee relationships, legal and contractual issues, advantages and potential risks of franchising, franchisor/franchisee selection criteria, and international franchising. Previously offered as HRAD 3573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3623 Purchasing and Cost Control for Hospitality and Foodservice
Prerequisites: ACCT 2003.
Description: Theory, processes, and complexities of procurement and cost controls for products and services utilized in hospitality industries. Emphasis on management of the purchasing process, cost control systems, and technology applications. Previously offered as HRAD 3623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3663 Food and Beverage in Events
Description: Planning, producing and evaluating food and beverage service in events. Examination of assessment of client needs, communication processes, pricing strategies, staffing production techniques, presentation, and service standards/styles, for food and beverage service in events. Previously offered as HRAD 3663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3721 Introduction to Distilled Spirits
Prerequisites: Proof of minimum age 21.
Description: An introduction to global distilled spirits (brandy, gin, rum, tequila, whiskey, vodka, and various flavored liqueurs), including different styles and production techniques. Additional focus on developing taste profiles for different spirits and current trends in the industry. Previously offered as HRAD 3721.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
Additional Fees: HTM 3721 Consumable Mat fee of $30 applies.

HTM 3783 Diversity, Equity, and Inclusion in Hospitality & Tourism (D)
Description: Concepts, contemporary issues and application of diversity, equity, and inclusion (DEI) in the hospitality and tourism industry. Focus on inclusive leadership, cultural intelligence, unconscious bias, and development of strategies to mitigate sociopsychological barriers and foster diverse, equitable, and inclusive cultures in organizations and business communities. Previously offered as HRAD 3783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
General Education and other Course Attributes: Diversity

HTM 3813 Principles of Property Management
Description: Characteristics of the professional business of property management including the residential, commercial, and industrial segments. Focus on the property management organization; different types of properties and management procedures; property ownership structures; leasing and landlord tenant laws; marketing and sales of properties; facility management and maintenance; landlord tenant relations and customer service.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3823 Seminar and Leadership Symposium in Real Estate and Property Management
Description: The seminar course will focus on current issues and implications for the future of property management and real estate investment including exploration of sales, marketing, real estate, conflict resolution, negotiating and communication techniques, contracts, finance, human resources, and organizational behavior. A leadership symposium will be integrated and presented by distinguished property and real estate management professionals. Students will also prepare and complete optional industry certification exams for professional accreditation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 3833 Leadership Practicum in Property and Real Estate Management
Description: Application of critical thinking skills to solve problems in property and real estate management. Use of work, and other resources, to gain real-world understanding of management and leadership roles in property & real estate management. Supervised experience in a position (paid/volunteer) related to property and real estate management for at least 100 hours during the semester.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 4053 Study Abroad: Contemporary Global Impacts in HTM (G)
Description: A study of business in a country and region that will provide an integrated approach to the rich cultural, commercial, historical, political, economic, and religious issues. The country's role as a political and economic power will be examined. Comparison of technology, policies, and economics will be made, as well as investigating hurdles and synergies to doing business between that country and the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
General Education and other Course Attributes: International Dimension

HTM 4090 International Hospitality Studies
Prerequisites: Instructor Permission.
Description: Participation in a hospitality educational experience outside of the U.S. The international aspects of the hospitality industry especially in the country or countries included in the experience. Development of an understanding of local, regional and national customs and cultures through experiential learning. Previously offered as HRAD 4090. May not be used for degree credit with HTM 5090. Offered for variable credit, 1-18 credit hours, maximum of 18 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 4093 European Travel and Tourism (G)
Prerequisites: Instructor permission.
Description: In-depth examination of local/regional/national customs and cultures, and business practices related to travel and tourism in Europe. Previously offered as HRAD 4093. May not be used for degree credit with HTM 5093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
General Education and other Course Attributes: International Dimension

HTM 4103 Legal and Ethical Issues in Hospitality, Tourism, & Gaming
Description: Examination of legal and ethical standards in lodging, food and beverage, alcoholic beverage management, travel and tourism, events, large venues and entertainment, property management, clubs, cruises and casinos. Focus on creating and maintaining business practices that limit potential liability and enhance ethical decision making. Previously offered as HRAD 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4120 Advanced Special Events Management
Prerequisites: Instructor permission.
Description: Hands-on study of special events, forums and conferences. Planning activities include conception, planning, implementation, and evaluation of an event, forum or conference including marketing, public relations and volunteer coordination. Previously offered as HRAD 4120. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 4163 Hospitality and Tourism Marketing and Sales
Description: Strategies for marketing, sales and decision-making in the hospitality and tourism industries. Includes techniques and methods of customer identification, consumer behavior, competition, product, promotion, placement and pricing strategies as well as developing sales strategies to attract the target market. Previously offered as HRAD 4163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4183 Sustainable Tourism and Geography
Prerequisites: Junior standing.
Description: Sustainable tourism from a cultural and environmental perspective. Concepts and theories of sustainability and tourism, including human rights, environmental justice, and ethics, emphasizing the global environmental and social effects and possibilities of tourism. Management concepts, sectoral approaches, transport and mobility themes, and emerging issues in the context of sustainability. Same course as GEOG 4443 and GLST 4443. May not be used for degree credit with GEOG 5443. Previously offered as HRAD 4183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4193 European Cuisine and Beverages (G)
Prerequisites: Instructor permission.
Description: In-depth examination of the historical/modern influences, and local/regional/national customs and cultures related to cuisine and beverages in Europe. Previously offered as HRAD 4193. May not be used for degree credit with HTM 5193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
General Education and other Course Attributes: International Dimension

HTM 4443 Advanced Hospitality and Tourism Internship
Prerequisites: HTM 3443 and instructor permission.
Description: Management experience in multiple aspects of a hospitality or tourism organization. Exploration of human resources, development of an understanding of organizational behavior, conflict resolution, negotiating and communication techniques. Application of critical thinking skills to solve problems. The interaction between the customer and the products and services provided by the organization. Previously offered as HRAD 4443.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 4453 Revenue Management
Description: Focus on revenue management in hospitality and travel/tourism organizations with specific emphasis on pricing strategies, yield management, forecasting sales, and trend analysis. Previously offered as HRAD 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4703 Beverage Production and Distribution Systems
Description: Exploration of how major beverages of the world are produced and distributed throughout the United States and elsewhere. Examination of production systems includes farming practices, fermentation, distillation, and producer decision-making. Focus on distribution systems, especially the three-tier system, the supply chain, navigating relationships with vendors, and product selection/procurement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4723 International Wine & Culture
Prerequisites: Proof of minimum age 21.
Description: Introduction to understanding wine as a cultural product that has influenced the history and culture of the world. Focus on the history, varietals, classifications, production techniques, quality factors, laws, and practices of the major wine growing regions of the world. Emphasis on wine sensory evaluation and critical analysis. Previously offered as HRAD 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
Additional Fees: HTM 4723 Consumable Mat fee of $40 applies.

HTM 4743 Beverage Operations Management
Description: A focus on the operation of a dynamic, modern, and profitable beverage operation including employee recruitment/retention/motivation, technology assisted sales/ordering, and the development of beverage/cocktail program including menu engineering, product mix, profitability, and cost/inventory controls. Also, includes a history of mixology, and distilled spirits of the world. HTM 3263 Beverage Business Management strongly encouraged.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4763 Beverage Quality Assessment & Selection
Prerequisites: Proof of minimum age 21.
Description: A focus on evaluating the sensory experience (sight/smell/taste) and assessing quality factors of non-alcohol (coffee/tea) and alcohol beverages (wine/beer/spirits). Emphasis on how to confidently select and curate high-quality beer, wine, spirits and coffee/tea selections for a beverage program. Also includes information regarding the tasting portions of industry standard certification examinations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4813 Commercial Property and Asset Management
Description: This course provides a comprehensive overview of commercial property management including office, retail, industrial, and management of a portfolio of real estate assets. Students will explore practical insights and strategies, key concepts, tools, and techniques essential for effective management of commercial properties. Topics include lease negotiations, tenant relations, management contracts, maintenance strategies, financial management, and market analysis. Through case studies, discussions, and real-world examples, students will develop the skills and knowledge to be successful.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4823 Gaming Management
Description: Principles and practices of gaming operations management including gaming regulations/control, game types (slot machines, progressive wagering, table games, poker, sports betting), different types of casino operations as well as responsible gaming and the social/cultural/economic impact of the gaming industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4833 Management and Operations of Casinos
Description: Analysis of the variations between casino management and operations and that of other similar hospitality businesses. The operational relationships between revenue generating and revenue support of entities located within casinos, such as food and beverage, entertainment, recreation, and player development will be examined. Topics also include staffing and training, managing slots and tables, and maintaining casino security. Previously offered as HRAD 4833.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 4850 Special Topics in Hospitality and Tourism Management
Description: Special course of study related to specific problems in hospitality/travel/tourism. Previously offered as HRAD 4850. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 4900 Honors Research
Prerequisites: Spears School of Business Honors Program participation, senior standing.
Description: Guided creative component for students completing requirements for College Honors in Spears School of Business. Thesis, creative project or report under the direction of a faculty member in the major area, with second faculty reader and oral examination. Previously offered as HRAD 4900. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt
General Education and other Course Attributes: Honors Credit

HTM 4983 Conventions, Conferences, and Meetings
Description: Planning and implementing conventions, conferences, meetings, seminars and symposia. Designing, promoting, managing and evaluating educational events, and contract management. Previously offered as HRAD 4983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5000 Master's Thesis
Prerequisites: Graduate standing and consent of adviser.
Description: Individual research interests in hospitality administration fulfilling the requirements for the MS degree. Previously offered as HRAD 5000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

HTM 5030 Master's Creative Component and Independent Study
Prerequisites: Graduate standing and consent of instructor.
Description: Individual research and study having relevance to the hospitality field and a positive impact on the hospitality industry. Previously offered as HRAD 5030. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 5090 International Hospitality Studies
Prerequisites: Instructor Permission.
Description: Participation in a hospitality educational experience outside of the U.S. The international aspects of the hospitality industry especially in the country or countries included in the experience. Development of an understanding of local, regional and national customs and cultures through experiential learning. May not be used for degree credit with HTM 4090. Offered for variable credit, 1-3 credit hours, maximum of 18 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 5093 European Travel and Tourism
Prerequisites: Instructor Permission.
Description: In-depth examination of local/regional/national customs and cultures, and business practices related to travel and tourism in Europe. Previously offered as HRAD 4093. May not be used for degree credit with HTM 4093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5112 Graduate Education and Research
Prerequisites: Graduate students only or consent of instructor.
Description: Systematic introduction to the competencies of graduate education and research in hospitality and tourism education and management. Previously offered as HRAD 5112.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5193 European Cuisine and Beverages
Prerequisites: Instructor Permission.
Description: In-depth examination of the historical/modern influences, and local/regional/national customs and cultures related to cuisine and beverages in Europe. May not be used for degree credit with HTM 4193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5233 Convention and Special Event Management
Description: Meeting and event design, working with industry suppliers, on-site management, post-event analysis, computers and technology, and meetings documentation. Previously offered as HRAD 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

HTM 5253 Fundamentals of Gaming Management
Description: Comprehensive overview of the gaming industry in the US and globally through in-depth examination of theoretical and practical components of gaming. Focuses on gaming history, contemporary impacts and issues, as well as application of gaming industry principles in various operational divisions and specializations. Previously offered as HRAD 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5263 Applied Revenue Management in Hospitality and Tourism Management
Description: This course uses an online simulation tool to facilitate an in-depth understanding of revenue management's key concepts and applicability of revenue maximization strategies. The components of effective revenue management will be executed through entering decisions in the online simulation and their effects on overall profitability on the lodging operation will be analyzed and evaluated.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5273 Casino Operations and Management
Description: Comprehensive overview of the differences of casino operations and management compared to other similar non-gaming hospitality operations. The course will examine the operational relationship of revenue generation and revenue support from entities found within casinos such as food and beverage, entertainment, recreation, and player development. Other crucial elements such as training and staffing, slot and table management, casino security and surveillance and public perception will all be undertaken as part of the course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5323 Hospitality and Tourism Financial Management
Description: Key concepts, tools and techniques critical for managerial decision making in financial aspects of hospitality organizations. Previously offered as HRAD 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5383 Gaming Law, Regulations, and Compliance
Description: Comprehensive investigation of policies and procedures as well as compliance issues historically and currently governing gaming activities that have developed through legislation, common law, and various regulatory bodies. Students will work through assigned review materials and quizzes for general understanding, then discuss and collaboratively analyze that material.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5413 Hospitality and Tourism Human Resources Management
Description: Key concepts, tools and techniques critical for Hospitality and Tourism Human resource management, including diversity and inclusion in the hospitality workforce, employee development, labor issues, and maintaining a productive workforce. Previously offered as HRAD 5413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5423 Hospitality and Tourism Marketing Management
Prerequisites: Undergraduate marketing course.
Description: The concepts and strategies of hospitality and tourism marketing management and customer development. Previously offered as HRAD 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

HTM 5443 Hospitality & Tourism Management Graduate Internship
Description: Supervised work internship with an approved employer and worksite related to a future career in the hospitality industry. Experience must include management/supervisory aspects within a hospitality organization.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

HTM 5503 Big Data Analytics in Hospitality and Tourism Management
Description: An in-depth study of various topics and techniques in big data analytics, especially in the hospitality and tourism research domains. Fundamentals of data acquisition, data transformation, data visualization, and data mining via the discussion of literature and hands-on analytical activities. Concepts, methodologies, techniques, and related software packages.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 5513 Hospitality and Tourism Strategic Management
Description: Focus on strategic decision making in hospitality and tourism organizations. Examination of the processes by which managers strategically position the organization and allocate resources to maximize its economic value in uncertain, dynamic, and competitive environments. Previously offered as HRAD 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

HTM 5813 Research Methods and Analytics in Hospitality and Tourism
Description: Scientific methods and current research methodologies and analytical and data visualization techniques as applied to problems in hospitality and tourism management. Proposal planning, research design, statistical use and interpretation, and research reporting. Previously offered as HRAD 5813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

HTM 5850 Special Topics in the Hospitality and Tourism Industry
Description: Special topics related to the hospitality and tourism industry. A problem-solving technique to design the research model and investigative procedures. Presentations to faculty, students and industry professionals at specialized workshops with research, instructional and industry project components. Previously offered as HRAD 5850. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

HTM 5870 Current Issues in the Hospitality and Tourism Industry
Description: Special recurring problems in the hospitality and tourism industry. Broad perspective of these issues and their application to the industry. Critical thinking skills to solve operational dilemmas. Previously offered as HRAD 5870. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 6000 Doctoral Dissertation
Prerequisites: Consent of major professor.
Description: Research in hospitality administration for the PhD degree. Previously offered as HRAD 6000. Offered for variable credit, 1-12 credit hours, maximum of 30 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 6113 Hospitality and Tourism Education
Prerequisites: Doctoral degree students only or consent of instructor.
Description: Theoretical and practical components of hospitality and tourism education with emphasis on universities, community colleges and vocational schools. Previously offered as HRAD 6113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 6713 Contemporary Hospitality and Tourism Theory
Prerequisites: Doctoral degree students only or consent of instructor.
Description: Advanced survey of both the classic and current body of knowledge in the area of hospitality and tourism management. Introduction to important works in the research area of hospitality and tourism management that will prepare students to assess fundamental research questions, opportunities, and limitations of the research. Previously offered as HRAD 6713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

HTM 6880 Doctoral Seminar in Hospitality and Tourism Management
Description: Study of the latest developments in hospitality and tourism research and management. Previously offered as HRAD 6880. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Hospitality & Tourism Mgmt

HTM 6993 Advanced Hospitality and Tourism Research
Prerequisites: Graduate level basic and/or intermediate research methods and intermediate statistics and doctoral degree student or consent of instructor.
Description: The latest advances in hospitality and tourism research theory development, modeling and research design. Focus is on improving ability to effectively develop/build a conceptual framework/model with an appropriate research design and hypotheses. Previously offered as HRAD 6993.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Hospitality & Tourism Mgmt

Human Development & Family Science (HDFS)

HDFS 1103 Adulting and Relating 101
Description: Applied introduction to exploring and building positive adult relationships. Focus on maintaining family of origin relations while developing personal identity, interpersonal ties, work and career interests, coping strategies for daily stress management, resolution of interpersonal and family conflict, and meeting personal needs. Application to personal and professional settings. Previously offered as HDFS 1101.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 1113 Introduction to Human Development and Family Science
Description: History, philosophy, and application of human development and family science. Discussion of critical issues relevant to human growth and family development. Exploration of personal interests, career options, and professional practice within the field of human development and family science. Previously offered as FRCD 2613 and HDFS 1112.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 2113 Lifespan Human Development (S)
Description: Physical, cognitive, and social development of the individual within diverse family systems. Taught from a life-span ecological perspective. Previously offered as FRCD 2113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Society & Human Behavior
Additional Fees: IDEA Tuition fee of $448 per credit hour applies.

HDFS 2114 Lifespan Human Development: Honors
Prerequisites: Honors students only.
Description: Honors course critically examining the study of human development within diverse family systems. Taught from a lifespan perspective.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Honors Credit

HDFS 2123 Intellectual and Developmental Disabilities Across the Family Life Course (D)
Description: Exploration of intellectual and developmental disabilities including resources available to individuals and families across the lifecourse. Overview of history, theory, research, and practice to policy. Basic concepts and topics on the science of intellectual and developmental disability research. Includes weekly off-campus service-learning requirement in addition to lecture. Previously offered as HDFS 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Diversity

HDFS 2133 Navigating the Aging, Disability, and Community Living Service Network
Description: Exploring community-based services for families supporting adults and older adults living with physical, intellectual, and functional disabilities. Overview of the Americans with Disabilities Act with emphasis on learning how to find resources, programs, and services for safe and independent living. Topical discussion on financing healthcare, abuse protection, housing, transportation, nutrition, and advocacy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 2211 Early Childhood Field Experience I
Prerequisites: Concurrent enrollment in HDFS 2243 and HDFS 2233.
Description: Field experience working with children ages birth through age five. Observation of children in classroom contexts; design and implementation of age-appropriate activities with children.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 2213 Sexual Development in the Family Context (DS)
Description: Human sexual development from a family life course perspective. Intersection of sexual growth, identity, and adjustment with regard to values, beliefs, and norms of interaction within the context of family and cultural systems. Implications for individual health, family well-being, and community-based education and programming. Previously offered as FRCD 2213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Diversity, Society & Human Behavior

HDFS 2223 Foundations in Early Childhood Education
Prerequisites: HDFS 2113.
Description: Historical background of the profession and its future. Opportunities in early childhood as a professional. Developing an awareness of appropriate contexts for learning through realistic experiences in the early childhood classroom. Professional Education requirements introduced. Previously offered as FRCD 2100.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Human Dev & Family Sci

HDFS 2233 Development of Creative Expression, Play and Motor Skills in Early Childhood
Prerequisites: Concurrent enrollment in HDFS 2243 and HDFS 2211.
Description: Consideration of appropriate experiences in the areas of play, art, music and motor skills for young children from birth through eight years of age with an emphasis upon such experiences as a curricular base in early educational group settings. Observation and participation experiences with young children. Previously offered as FRCD 3303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 2243 Infant-Toddler Programming
Prerequisites: Concurrent enrollment in HDFS 2211 and HDFS 2233.
Description: Program planning, implementation and evaluation of developmentally appropriate programs for infants and toddlers. Directed observation and participation in infant and toddler programs. Previously offered as FRCD 4463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 2303 The Family Meal
Description: Contextual analysis of family meal time using a bioecological approach to address social, emotional, and cultural diversity in family food preferences and consumption, transmission of dietary habits and behaviors across multiple family generations, and policies, programs, and interventions that impact accessibility and sustainability of nutritional health and well-being among families aging and developing across the human life course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 2433 Romance, Love, and Marriage (S)
Description: Theory and research on the formation and development of interpersonal relationships and romantic attachments from dating through courtship and marriage. Scientific insights on building, maintaining, and preserving a healthy love life and marriage. Previously offered as HDFS 3433, HDFS 3143, FRCD 3433, and HIDC 3433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Society & Human Behavior

HDFS 2453 Management of Human and Family Service Programs
Description: Management of human and family service programs emphasizing accountability. Design and implementation strategies for conducting needs assessments, evaluating program impact and personnel performance, using information systems, building supervisory relationships, and funding, managing, and sustaining program budgets. Previously offered as HDFS 3453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 2850 Special Unit Courses in HDFS
Description: Various units taught by specialists in Human Development and Family Science. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 3021 Topics in Early Childhood Education
Description: Current selected problems or topics in early childhood education which influence individual and family risk and resiliency, including NCLB, current legislative issues, policy issues and other topics that are of interest and importance to students enrolled during the semester.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3023 Child Development - Birth to 3
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113.
Description: Major theories and research on development from birth to age 3 including growth patterns, influences of disabilities and risk factors, environmental factors and their effects on attachment styles, language acquisition, brain development, cognitive development, social-emotional development, and perceptual and sensory motor skills. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $448 per credit hour applies.

HDFS 3024 Literacy Assessment and Instruction in Early Childhood Education
Prerequisites: Concurrent enrollment in HDFS 4313 and HDFS 4323 and HDFS 4363. Full Admission to Professional Education.
Description: Developmentally appropriate assessment and instructional practices to meet language and literacy needs of children, age birth to 8 years. Based on a constructivist framework, formal and informal assessments will be used to inform classroom practices. Assessments consistent with SBRR, NAEYC and IRA guidelines, with a focus on performance, observation, and interviews will address literacy needs of diverse learners in the context of an EC classroom practicum.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3033 Child Development - 4 to 8
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113.
Description: Physical, cognitive, social/emotional and personality growth and development during early childhood. Major theories of development and current research and ideas in conjunction with historical approaches to examining growth and development in ages 4-8. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3043 Professional Development for Early Childhood Educators
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113.
Description: The role of a professional as a teacher, administrator or advocate in early childhood programming. Professionalism and ethics, identifying child abuse, and applying universal precautions. Discussion of qualities of the early childhood educator role, program models, and working with children and professional colleagues. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $448 per credit hour applies.

HDFS 3053 Child Guidance and Classroom Environments
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113.
Description: Developmentally appropriate practice in child guidance through review of current guidance methods and programs to familiarize students with successful guidance techniques. Students will develop their own approach to guidance based upon practices best suited to their own unique skills and strengths. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3063 Health, Safety And Nutrition
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113.
Description: Planning, promoting and maintaining healthy and safe learning/care environments, understanding childhood illnesses and establishing healthy lifestyles, first aid, and maintaining care provider's own health. Maintaining safe relationships with others, including identifying and reporting abuse, neglect, and exploitation of children. Exploration of nutrients for life and feeding, food preparation and safety policies and guidelines, food allergies and intolerances, appropriate feeding practices. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3103 Social Development and Social Studies in Early Childhood
Prerequisites: Concurrent enrollment in HDFS 3202 and HDFS 3213 and HDFS 3223 and HDFS 3233. Full Admission to Professional Education.
Description: Developmentally appropriate social studies curriculum and instruction for young children; content selection, lesson planning, teaching methods, materials and evaluation strategies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3122 Introduction to Human Development and Family Sciences for Transfer Students
Description: Facilitation for students transferring from other majors or institutions of higher education to the Department of Human Development and Family Science. An exploration of the philosophy, research applications, services, careers, and options within the field of Human Development and Family Science. May not be used for degree credit with HDFS 1112.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3123 Parenting Across Family Contexts (S)
Description: Parent-child relations from a family ecological perspective. Fundamental theories and special topics such as first-time parents, single and step-parenting, co-parents, and foster and adoptive parenting. Inquiry of parenting styles, parent education programming, and advocacy of parental rights. Previously offered as FRCD 3023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Society & Human Behavior

HDFS 3133 Fundamentals of Case Management
Description: Principles of case management in the human and family service field. Comprehensive approaches to roles and responsibilities involving client assessment, documentation, service referral, navigating and coordinating community resources, and advocacy. Special emphasis on strengthening social and family observation skills, improving problem-solving and ethical decision-making abilities, and developing effective communication styles to help meet the needs of individuals and families living in communities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3202 Early Childhood Field Experience II
Prerequisites: Concurrent enrollment in HDFS 3103 and HDFS 3213 and HDFS 3223 and HDFS 3233. Full Admission to Professional Education.
Description: Field experiences in classroom setting working with children in PreK through 3rd grade. Reflective decision making that incorporates the major content area concepts and skills involved in organizing, planning, and developing instruction in early childhood classrooms. Previously offered as HDFS 3201.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 3203 International Perspectives on Children's Play (G)
Description: Exploration of children's play across contemporary world cultures. Foundational theories and international perspectives addressing the intersection of play and physical, cognitive, and social development of children within complex and modern world systems. Special focus on play therapy interventions and approaches for children representing different cultures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: International Dimension

HDFS 3213 Literacy Development in Early Childhood Education
Prerequisites: Concurrent enrollment in HDFS 3202, HDFS 3223, HDFS 3103, and HDFS 3233; Full Admission to Professional Education.
Description: Theoretical and research-based rationale for integrated language arts and an interdisciplinary approach to literacy addressing writing, reading, and oral language development for children birth through age eight. Use of children's literature. Previously offered as FRCD 3403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3223 Mathematics and Science in Early Childhood
Prerequisites: Concurrent enrollment in HDFS 3103 and HDFS 3202 and HDFS 3213 and HDFS 3233. Full Admission to Professional Education.
Description: Developmentally appropriate mathematics and science curriculum and instruction for young children; content selection, lesson planning, teaching methods, materials, and assessment strategies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3233 Guidance and Classroom Management in Programs for Young Children
Prerequisites: Concurrent enrollment in HDFS 3103 and HDFS 3202 and HDFS 3213 and HDFS 3223. Full Admission to Professional Education.
Description: Examination of early childhood classroom management and guidance models and practices, including relevant theories, influential research, and developmentally appropriate guidance strategies that facilitate the development of prosocial behaviors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3263 Curriculum Development for Children Ages Birth to 3
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, HDFS 3033, HDFS 3043, HDFS 3053, HDFS 3063.
Description: Learn and utilize assessment and documentation to inform curriculum, plan and evaluate developmentally appropriate activities, and learn effective ways to share curriculum information with families for children ages 0-3. Developmental domains and content areas; issues related to diversity in family composition, culture, and individual abilities will also be addressed. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $448 per credit hour applies.

HDFS 3273 Curriculum Development for Children Ages 4-8
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, HDFS 3033, HDFS 3043.
Description: Learn and utilize assessment and documentation to inform curriculum, plan and evaluate developmentally appropriate activities, and learn about effective ways to share curriculum information with families for children ages 4-8. Developmental domains and content areas; issues related to diversity in family composition, culture, and individual abilities will also be addressed. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3283 Assessing Young Children and their Environments to Enhance Development
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, HDFS 3033, HDFS 3043, HDFS 3053, HDFS 3063.
Description: Select, evaluate, and use appropriate assessment tools for children birth to age 8 using assessment data to inform decisions about teaching (environments and practice) and intervention. Emphasis on the ethical use of assessments, validity of assessments, multicultural sensitivity, and assessments for children with special needs. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $448 per credit hour applies.

HDFS 3293 Understanding and Adapting for Developmental Differences
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, HDFS 3033, HDFS 3043, HDFS 3053, HDFS 3063.
Description: Knowledge of disability conditions, assessment and identification, interventions in inclusive environments, and collaborations among family members and service providers. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $448 per credit hour applies.

HDFS 3303 Administration and Supervision in Early Childhood Settings
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113.
Description: Exploration of issues surrounding the administration of early childhood programs including identification of community needs, analysis of business opportunities, evaluation and appropriate use of space and quality programming, consideration of policy and legal responsibilities, and professionalism in the field. Best practices in staff selection, training, coaching and supervision. Web based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3313 Technology And Young Children
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113.
Description: Electronic technology's impact on the development of young children in educational, home, and community environments and how it can be used in early childhood classrooms to enhance teaching and learning. Students will be critical thinkers and informed consumers of technology related to young children. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $448 per credit hour applies.

HDFS 3323 Diversity in the Lives of Young Children and Families
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program; SOC 1113; PSYC 1113; and HDFS 2113 or equivalents.
Description: Exploration of cultural diversity in daily life and beliefs in families with young children. The focus is on U.S. families, with attention to the multiple cultures from which they come. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3333 Working with Families
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113.
Description: Application of an ecological model to the understanding of variation in parental roles, perspectives, relationships, approaches, and challenges. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3413 Infant and Child Development
Description: Examination of change and continuity in physical, cognitive/language, and social and emotional development from the prenatal period through early and middle childhood. Directed observation of infants and children in diverse contexts. Previously offered as FRCD 3213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3423 Adolescent and Youth Development (S)
Description: Youth and adolescent development within the context of family, peer, school, and community relations. Focus on physical, intellectual and socio-emotional change and adaptation involving autonomy, identity, sexuality, peer-relationships, and vocational choice. Directed observation of pre-adolescent and adolescent children. Previously offered as FRCD 3333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Society & Human Behavior

HDFS 3443 Family Dynamics
Description: Foundational theories on the dynamics of family systems across the life course and within the social context. Application of evidence-based research to inform professional practice with families. Additional insight on prevention and intervention strategies to reduce risk and increase resilience in families. Previously offered as FRCD 3753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3503 The Human Spirit
Description: Inquiry of conflict resolution, forgiveness and spiritual healing, and post-traumatic growth from a family ecological and life course perspective. Focus on reconciling personal suffering stemming from family adversities, resolving generational and historical transgressions, and finding acceptance and meaning-in-life. Exposure to evidence-based practices, interventions, and programs that promote human resilience and agency, strengthen family and community relations, and foster personal growth and spiritual well-being.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3513 Research Methods in Human Development and Family Science
Description: Fundamentals of the scientific method in human development and family science research. Emphasis on research design, population sampling, and measurement and assessment approaches. Analytical, evaluative, interpretive, and technical reporting skills to become an informed consumer and user of research for professional practice in human and family service settings. Previously offered as FRCD 4743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3523 Professional Skills in Human and Family Services
Description: Preparation for human and family services careers. Content focus on professional ethics and leadership, networking and communication, community partnerships, and advocacy. Professional skill development involving resume writing, mock interviewing, orientation to internship site exploration, identification, and placement. Previously offered as HDFS 2523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3533 Observation and Assessment
Prerequisites: HDFS 2113
Description: Examination of individual and family behavioral interactions through observation and assessment techniques used across multiple contexts. Special focus on observation and assessment methods used to evaluate socio-emotional attachments and interactions involving but not limited to child-parent, marital couple, and grandchild-grandparent dyads.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3603 Family and Consumer Sciences Classroom Management and Educational Foundations
Description: Emphasis on the principles and practices of effective classroom management needed in contemporary FCS programs by Cooperative Extension Service educators and public school teachers; observation hours required. Historical and contemporary influences on the development and mission of Family and Consumer Sciences Education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 3623 Field Experiences in Family and Consumer Sciences Education
Prerequisites: HDFS 3603.
Description: Supervised Family and Consumer Sciences Education field experiences specific to Cooperative Extension Service and public schools. A minimum of 60 observation hours are required.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Human Dev & Family Sci

HDFS 3813 Tech-Enabled Families
Description: Examination of how individuals and their family members adopt and use digital platforms, social media, and AI tools to communicate, monitor behaviors, and support healthy living. Special emphasis on how technology impacts physical, mental, and social development and the health and well-being of individuals and their family members across the life course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4000 Senior Thesis
Prerequisites: Consent of instructor.
Description: Supervised research for the bachelor's degree. Previously offered as FRCD 4000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 4023 Practicum II in Early Childhood
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, HDFS 3033, HDFS 3043, HDFS 3053, HDFS 3063, HDFS 4013.
Description: Guided learning experience in a professional agency that provides services to children and families. Learning experiences and projects will provide teacher candidates the opportunity to utilize and implement theories and practices learned in other ECE classes. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $448 per credit hour applies.

HDFS 4036 ECCD Senior Capstone
Prerequisites: Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3273, HDFS 3283, HDFS 3293, HDFS 3303, HDFS 3313, HDFS 3323, HDFS 3333, and HDFS 4013.
Description: This course focuses on integrating, extending, critiquing, and applying the knowledge gained within the Early Child Care and Development (ECCD) degree program within the context of a unified early childhood education profession through lecture, field experience, and action research. Previously offered as HDFS 4033.
Credit hours: 6
Contact hours: Lecture: 3 Contact: 6 Other: 3
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $448 per credit hour applies.

HDFS 4313 Early Childhood Field Experience III
Prerequisites: Concurrent enrollment in HDFS 3024 and HDFS 4323 and HDFS 4363. Full Admission to Professional Education.
Description: Field experience in PreK through 3rd grade setting. Develop philosophical perspectives of teaching, consider effective family-teacher relationships, and connect with the wider community as a resource context for teaching and learning. Plan and teach an integrated curriculum unit. Graded on a pass-fail basis.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 4323 Family, School, and Community
Prerequisites: Concurrent enrollment in HDFS 3024 and HDFS 4313 and HDFS 4363. Full Admission to Professional Education.
Description: Examination of family theories, family relationships with schools and communities, and implications for early childhood practice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4333 Early Childhood Capstone
Prerequisites: Concurrent enrollment in HDFS 4339 and full admission to Professional Education.
Description: Examination of the role of the early childhood professional in broader society contexts such as policy, advocacy, research and funding. Previously offered as FRCD 4523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4339 Student Teaching in Early Childhood Education
Prerequisites: Concurrent enrollment in HDFS 4333, and full admission to Professional Education.
Description: A prekindergarten through grade three classroom teaching experience under the direction of a certified early childhood teacher and an early childhood education faculty member. Previously offered as HDFS 4226.
Credit hours: 9
Contact hours: Contact: 9 Other: 9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 4363 Integrated Curriculum in Early Childhood Education
Prerequisites: Concurrent enrollment in HDFS 3024 and HDFS 4313 and HDFS 4323. Full Admission to Professional Education.
Description: Develop a conceptual and applied understanding of early childhood curriculum, with an emphasis on integration across subject matter areas, differentiation, and assessment-informed instruction. Plan and implement an integrated curriculum unit. Previously offered as HDFS 3243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4373 Adverse Childhood Experiences
Description: Overview of the science of adverse childhood experiences (ACEs). Emphasis on short-and long-term developmental impacts on children's health and well-being relative to disease and disability, cognitive and intellectual functioning, mental health, family and interpersonal relations, and psychosocial risks involving personal safety. Practical implications for building resilience and promoting health and well-being during childhood and across the life-span.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4393 Trauma Informed Practice in HDFS
Description: Exploration of trauma informed care practice for individuals and families exposed to abuse, household violence, addiction, sex trafficking, warfare, natural disaster, incarceration, and historical trauma. Evaluation of trauma-informed care policies, programs, and interventions within school, medical, correctional, and military settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4413 Successful Aging (S)
Description: Examination of unique characteristics that promote positive adult development during the second half of life. Emphasis on biopsychosocial processes during the middle and older adult years that influence physical, mental, and social development and well-being of the individual and their family members. Previously offered as FRCD 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Society & Human Behavior

HDFS 4423 Family Risk and Resilience
Description: Examination of selected theoretical approaches; areas of family risk; protective factors; individual and family qualities relating to resilience; and prevention and intervention strategies. Previously offered as FRCD 4553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4433 Family Life Education
Description: History, philosophy and principles of family life education. Design, implementation, and evaluation of family life programs for community and education settings. Community-based field observation and experience. May not be used for degree credit with HDFS 5113. Previously offered as FRCD 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4473 Policy, Law and Advocacy
Description: The study of local, state, and federal legislations, regulations, social policies, and advocacy that affect children and families. Domestic relations, child welfare, health, education, social services, employment and housing. Previously offered as HIDC 4473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4520 Student Teaching in Family and Consumer Sciences Education
Prerequisites: Full admission to Professional Education.
Description: Directed experience in an approved Family and Consumer Sciences classroom. Applications of methods and skills in Family and Consumer Sciences education as related to selecting, adapting, using, and evaluating curriculum materials, including experiences to meet educational goals and to facilitate learning for individual students. Experiences will also involve responsibilities with other school personnel and parents. Offered for variable credit, 6-9 credit hours, maximum of 9 credit hours.
Credit hours: 6-9
Contact hours: Contact: 6-9 Other: 6-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 4521 HDFS Child and Family Services: Pre-Internship
Prerequisites: HDFS 1112 or HDFS 3122 and HDFS 2523 and EDHS 1112 or EDHS 3112, all with a "C" or better.
Description: Preparatory workshop for HDFS Child and Family Services internship.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4533 Critical Issues in Human Development and Family Science
Prerequisites: Senior standing.
Description: An examination of the place of Human Development and Family Science in the context of broader themes. An exploration of the students' specialization and its implications for an educated life.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4543 Intergenerational Relationships (S)
Description: Analysis of relationship dynamics transmitted across multiple family generations. Special emphasis on adult child-older parent relations, adult sibling interactions, grandparents raising grandchildren, in-law relationships, and fictive kinship bonds. Insights on community-based services, programming and policies for multi-generational families. Previously offered as FRCD 4543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Society & Human Behavior

HDFS 4563 Internship in Child and Family Services
Prerequisites: HDFS 1113 and HDFS 2523, or consent of advisor and instructor.
Description: Supervised field experience applying HDFS knowledge and skill base in the child and family services. Must complete application for internship approval. Includes class assignments, weekly hour reporting, and communication that demonstrates application of HDFS knowledge and skill base in the field.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 4572 Internship in Child and Family Services II
Prerequisites: HDFS 1112 and HDFS 3122 and HDFS 2523 and HDFS 4521 and HDFS 4563, senior standing, and consent of advisor and instructor.
Description: Supervised field experience applying HDFS knowledge and skill base. Must complete application for internship. Previously offered as HDFS 4525.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 4573 Introduction to Marriage and Family Therapy
Description: Introduction to the field of Marriage and Family Therapy (MFT). Includes theoretical foundations of the disciplines as well as assignments that demonstrate the application of the theories in a family therapy session. May not be used for degree credit with HDFS 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4583 Aging and Disability Program Assessment for Community Practice
Description: Applied evaluation of aging, disability, and community living programs. Skill development involving identification, selection, and tools designed to determine impact, efficiency, and merit of community-based programs. Contemporary strategies and methods in professional programming and practice used to support individuals aging with cognitive, intellectual, and developmental disabilities and family members providing assistance. May not be used for degree credit with HDFS 5083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4713 Family Resource Management
Description: Examination of how families handle and manage interpersonal, financial, workplace, social and community resources over the life course. Emphasis on communication, decision-making, and resource use within the family system, particularly for families responding and adapting to changing situations that may affect the timing, availability, and balancing of resources. May not be used for degree credit with HDFS 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4750 Topics In HDFS
Prerequisites: Consent of instructor.
Description: Various units of work related to specific issues in Human Development and Family Science. Previously offered as FRCD 4750. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 4793 International Families (GS)
Description: Family structures and interactions that transcend specific cultures or nationalities. Examination of specific cultural and international family forms, their social issues, and relevant human and family services to meet their needs. Exploration of topics surrounding immigrant family health and mental health, language erosion, and cultural comparisons of family beliefs, customs and practices. Previously offered as FRCD 4793.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: International Dimension, Society & Human Behavior

HDFS 4813 Dying, Death and Bereavement
Description: Physical, psychological, emotional and social aspects to dying and death across the life course. Examination of human experiences with and responses to dying and death within various contexts such as family, medical and cultural.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4823 Family Caregiving
Description: Fundamentals of family caregiving across the life course continuum involving aging and disability, medical and mental healthcare, and legal and ethical issues. Special focus on family caregiver roles, work-life balance, access to community resources, financing of care, and self-care practices. Implications for professional practice, family therapy, community education, and policy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4833 Human and Family Longevity
Description: Exploring the secrets to living a long, healthy, and meaningful life. Analysis of physical, mental, and socio-cultural factors that improve human and family health and well-being, increase healthy life-expectancy, and promote human survival among individuals, within families, and across communities in United States and around the world, including longevity Blue Zones. Implications for designing services, implementing programs, and developing policies to support long-lived adults, their family members, and community resources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4850 Special Courses in Human Development and Family Science
Prerequisites: Consent of instructor.
Description: Various courses related to specific issues in Human Development and Family Science. Previously offered as FRCD 4850. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 4900 Honors Creative Component
Prerequisites: College of Human Sciences Honors Program participation, senior standing.
Description: Guided creative component for students completing requirements for College Honors in College of Human Sciences. Thesis, creative project or report under the direction of a faculty member in the major area, with second faculty reader and oral exam. Previously offered as FRCD 4900. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci
General Education and other Course Attributes: Honors Credit

HDFS 4913 Instructional Methods in Family and Consumer Sciences
Description: Development of Family and Consumer Sciences Education instructional materials for both Cooperative Extension Service and public school settings. Observation hours required. May not be used for degree credit with HDFS 5903.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 4950 Research Practicum in HDFS
Prerequisites: Consent of instructor.
Description: Hands-on research experience under the direction of faculty members in various human development and family science topics. Graded pass/fail. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 5000 Master's Thesis
Description: Research in HDFS for MS degree. Previously offered as HDFS 5000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 5013 Assessment for Aging Research
Description: State-of-the-art knowledge and experiential field-based application of observational skills, interviewing techniques, online survey applications, and clinical diagnostic tools used to screen, assess, and study the biological, psychological, and social functioning of older adults.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5023 Introduction to Marriage and Family Therapy
Description: Introduction to the field of Marriage and Family Therapy (MFT). Includes theoretical foundations of the disciplines as well as assignments that demonstrate the application of the theories in a family therapy session. May not be used for degree credit with HDFS 4573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5043 Technical Writing in HDFS
Description: Overview of writing in HDFS research. Topics will include literature reviews and APA formatting. Writing assignments will focus on conference abstracts/presentations, short and long literature reviews, empirical articles, and manuscript reviews.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5053 Gerontechnology
Description: This course takes an interdisciplinary approach to the understanding of the biological, environmental, and social spheres where technology and gerontology meet. Topics include the interrelationship between population dynamics and technological change, technological research and devices that may improve older adults' lives, particular issues for rural communities, and the social and cultural meanings, challenges, and benefits of technologies designed for older adults and their care providers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5083 Disabilities in the Family and Community Context
Description: Intellectual and developmental disabilities from a systemic perspective, emphasizing the role of families and communities across the lifespan. Current policy, research, and practice for community inclusion and family support. Conceptual frameworks for understanding of and practice with individuals with intellectual and developmental disabilities and families will include family systems and ecological perspectives. May not be used for degree credit with HDFS 4583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5110 Directed Study in HDFS
Description: Directed individual study in human development and family science. Offered for variable credit, 1-9 credit hours, maximum of 12 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5112 Computer Applications in HDFS Research
Description: Creating variable codebooks, data coding, data entry, variable specifications and data manipulation, merging files, and basic analysis using SPSS software. No computer experience necessary. Previously offered as FRCD 5112.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5113 Family Life Education
Prerequisites: HDFS 2113 and HDFS 3123 and senior standing.
Description: Philosophy and principles of family life education. Planning, implementing, and evaluating family life programs in community and education settings. Field experience. May not be used for degree credit with HDFS 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5123 Research Methods and Design in HDFS
Description: Research processes, design, methods, and program evaluation in human development and family science. Application of research tools and methods to investigate theoretical, empirically-based, or field-based research issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5133 Research Methods in HDFS II
Prerequisites: HDFS 5123.
Description: The steps involved in writing a research proposal, including writing a literature review, research goals, and hypotheses. Developing procedures and measures used to test the hypotheses. How to compute and interpret statistical analyses common to thesis projects (e.g., internal consistency, descriptive statistics, ANOVAs, correlations, and regressions).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5153 Policy in Human Development and Family Science
Description: Critical analysis of approaches to and models of policy in Human Development and Family Science. Examination of policy analysis and evaluation, development, advocacy, and implementation of state and federal policy and legislation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5160 Master's Creative Component
Prerequisites: HDFS 5253, HDFS 5293, HDFS 5513 or HDFS 5523 or equivalent and consent of instructor.
Description: Creative application of student's knowledge to solve a problem of interest in HDFS. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5163 Master's Capstone in HDFS
Description: Development and implementation of a capstone project related to an area of human development and family science. Interfaces with field experience and involves the integration of theory, research, and application.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5173 Program Design, Implementation, and Evaluation in Human Development and Family Science
Prerequisites: Online Section Admission to the HDFS Family and Community Services GPIDEA Graduate Program; Campus-based Section Admission to the HDFS Graduate Program or consent of instructor.
Description: An exploration of the principles and methods of program design, implementation, and outcome evaluation of family and community programs. Previously offered as HDFS 5933.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5183 Practicum in Developmental and Family Sciences Research
Prerequisites: Admission to graduate study in HDFS, nine hours of graduate credit in HDFS, and consent of instructor.
Description: Supervised research experiences in human development and family sciences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5193 Reflective Practice
Description: An exploration of the principles and methods of reflective practice. Reflective journaling and group interactive dialogue based on the application of theoretical models. Supervised field experiences in community settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5203 Family Systems
Description: Research and theory related to family functioning throughout the life cycle, especially financial decision making during crisis and conflict. Factors that shape family values, attitudes and behaviors from a multicultural perspective. New and emerging issues critical to family functioning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5213 Lifespan Development
Prerequisites: Online GPIDEA Section Admission to the HDFS Family and Community Services GPIDEA Graduate Program. Campus based Section Admission to the HDFS Graduate Program or consent of instructor.
Description: An examination of human development including the cognitive, social-emotional, motor, language, and moral domains from both a lifespan and a bio-ecological perspective. Previously offered as FRCD 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5223 Resilience in Individuals and Families
Prerequisites: Admission to the HDFS GPIDEA Graduate Program.
Description: Exploration of resilience approaches to the study of families and human development across the life cycle. Web-based instruction. Previously offered as 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5233 Infant Mental Health
Description: Foundations of infant mental health theory, research, and practice. Includes the familial context of children's early development and the importance of infant-caregiver relationships, early intervention, assessment, and reflective practice. Emphasis is placed on the application of infant mental health principles across settings and disciplines focused on early childhood and families.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5243 Infant and Early Childhood Development and Attachment
Description: Survey of research and theory pertaining to infant and early development and attachment. Content includes cognition and learning, social and emotional development, and assessment. An emphasis is placed on attachment and implications for practitioners working with young children and their families. Previously offered as FRCD 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5253 Theory and Research: Social and Emotional Development
Description: Research and theory pertaining to social and emotional development, including attachment and family context, social interaction, friendships and temperament. Incorporates applications to policy and practice. Previously offered as HDFS 6253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5263 Theory and Research: Cognitive and Language Development
Description: Research and theory pertaining to cognitive and language development including environmental influences and family influences, attention and memory, problem solving, and social cognition. Incorporates applications to policy and practice. Previously offered as HDFS 6243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5273 Parent Education
Prerequisites: Consent of instructor.
Description: Parent-child relations, parenting strategies, and other major components of empirically validated parent education programs that lead to certification. Supervised practice. Previously offered as FRCD 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5283 Developmental Disabilities
Description: Overview of contemporary research, theory, practice, and policy in the field of developmental disabilities with a primary focus on individuals with intellectual disability and their family members. Previously offered as HDFS 6373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5290 Practicum
Prerequisites: Consent of instructor.
Description: Supervised experience in various settings relevant to human development and family sciences. Previously offered as FRCD 5290. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 5293 Human Development Theory
Description: Examines theories and models of human development in a family context using a lifespan perspective.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5313 Creativity and Aging
Prerequisites: Admission to the Great Plains IDEA Gerontology program.
Description: Developmental and pathological changes in the brain that can lead to changes in creative output over time. Hands-on experience and direct association with older adults to grow an appreciation for creativity produced and inspired by older people. Provides experiences for development of art programs for older adults. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5323 Issues in Early Childhood
Description: Systematic examination and in-depth reflection on selected issues and trends in early childhood education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5333 Early Childhood Education History and Theory
Description: The history of early childhood education and theoretical approaches for planning educational programs and learning experiences for young children. Previously offered as FRCD 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5343 Developmental Assessment and Interventions
Description: Applications of qualitative and quantitative approaches to observation and developmental assessment and intervention strategies for students preparing to become specialists or practitioners working with children and families, including early childhood educators, child and parenting practitioners, and human service practitioners. Previously offered as FRCD 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5353 Diversity in Early Childhood
Description: Exploration and critical review of the state of early childhood programming with emphasis on research, theory, and policy making that bear on current diversity and multicultural issues in practice. Previously offered as FRCD 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5363 Early Childhood Development and Education
Description: The interaction of biology, family, culture, and extended environment on children's emotional, social, and cognitive development during the early childhood years. The implications of regularities and diversity in development for teaching and learning and on principles of educational practice to enhance development. Previously offered as FRCD 5363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5373 Early Childhood Administration
Description: Examination of the administration, management, and supervision of programs for young children. Legal, social, and economic conditions affecting programs. Previously offered as FRCD 5373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5400 Professional Seminar in Gerontology
Description: An integrative experience for gerontology students designed to be taken near the end of the degree program. By applying knowledge gained in earlier course work, students strengthen skills in ethical decision-making and behavior, applying these skills in gerontology-related areas such as advocacy, professionalism, family and workplace issues. Students from a variety of professions bring their unique perspectives to bear on topics of common interest. Web-based instruction. Offered for fixed credit, 3 credit hours, maximum of 3 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5403 Foundations in Integrative Aging Studies
Description: This course introduces foundational concepts to the interdisciplinary field of gerontology and aging studies, including: core theories of adult development and aging, how to be critical consumers of aging research, developing writing and other professional skills, and exploring career options in aging.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5411 Ethics and Aging
Description: Analysis of ethical issues for the aging population. Critical examination of various ethical issues from legal, psychological, social, and financial perspectives. Enrollment requires attendance of the one-day, Oklahoma Ethics and Aging Conference.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5413 Contemporary Perspectives in Adult Development and Aging
Description: Biopsychosocial dimensions of human aging from a lifespan development perspective with an integrative perspective that (a) considers the impact of early development and socio-historical influences on late life development; (b) emphasizes aging processes across diverse groups and contexts, and (c) identifies pathways to optimal functioning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5423 Research Perspectives in Gerontology
Description: Critical review of gerontological literature. Special emphasis on current knowledge related to research methodologies, measurement applications, and clinical interventions used to study age-related processes and outcomes. Previously offered as FRCD 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5433 Theories of Aging
Description: Addresses the historical, contemporary and interdisciplinary basis of aging theory. Biological, psychological, sociological and human developmental conceptualizations of aging are critically assessed. Emphasis is placed on conceptual models, as well as theoretical development and application within gerontological research and the field of aging.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5443 Interpersonal Relationships
Prerequisites: Admission to the HDFS GPIDEA Graduate Program.
Description: An examination of interpersonal relationships in context, including theoretical perspectives, research methods, relationship forms, and relationship processes. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5453 Aging in the Medical Context
Description: Orients students to the unique issues related to health and the health system for individuals in later life. A particular focus is placed on health programs, the role of medical personnel and tasks of family members as older persons face health issues and decisions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5463 Biological Principles of Aging
Prerequisites: Admission to the Great Plains IDEA Gerontology Program.
Description: Introduction of basic biological principles that govern aging. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5470 Developments and Innovations in Human Development, Family Science, and Early Childhood Education
Description: Analysis of current developments and innovative practices in one or more of the specified areas. Emphasis upon evolving concepts with implications for programs serving societal needs in these areas. Previously offered as FRCD 5470. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 5473 Seminar in Long-Term Care
Prerequisites: Admission to the Great Plains IDEA Gerontology Program.
Description: Topics of interest for those in leadership roles in long-term care facilities, or senior living organizations. Draws on expertise of leaders in the field. Case studies are used to understand application of the material. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5483 Aging Network Seminar
Description: Orientation to community-based aging services and programs for older adults with consideration of professional ethics, state and federal legislation, and long-term care advocacy. Additional emphasis on career networking with aging service practitioners and providers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5493 Aging and Diverse Families
Description: Examination of contemporary family theories, contexts, behaviors, and policies impacting older adults. Special emphasis on family inclusion, diversity, and equity as it relates to family dynamics and transitions, intergenerational relationships from mid-life into old age, and governmental policies, professional ethics, and caregiving practices concerning older adults and their families.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5503 Family Diversity
Description: Examination of theory and research on diversity in families such as race, ethnicity, age, sexual orientation, gender, socioeconomic status, disability, or religion. Emphasis on effectively addressing family diversity in systemic assessment, practice, and policy. May not be used for degree credit with CPSY 5503 or PSYC 6133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5513 Issues in Family Science
Description: Current and classic literature in family studies. Consideration of philosophical bases and current research issues relevant to the family as a field of study. Previously offered as FRCD 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5523 Family Theory
Description: Foundation of theoretical frameworks and processes in family science. Overview of the interface between theory, research, and application in family science. Previously offered as FRCD 5523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5533 Perinatal and Reproductive Health
Description: Examination of perinatal, family planning, and reproductive health issues, programs, services, and policies. Emphasis on empirically-based interventions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5543 Family Crisis and Trauma
Description: Strategies for helping families deal with trauma and various family crises including illness, death and divorce. Focus on dealing with these from a family systems approach. Previously offered as FRCD 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5553 Perspectives on Parenting and Parent Education
Prerequisites: Admission to the HDFS GPIDEA Graduate Program.
Description: An examination of theories, models, methods, research, and skills related to parenting and parent education. Web-based instruction. Previously offered as FRCD 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5563 Community and Family
Prerequisites: Admission to the HDFS Graduate Program.
Description: Examination of current research and theory in the interactions of families and communities. Emphasis on empirical strategies for intervention to address community and family-based problems. Previously offered as HDFS 5743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5573 Adolescent in Family Context
Description: Physical, social, emotional and intellectual development of adolescents within the context of family relationships. Exploration of research and theory as it relates to adolescent development and parent-adolescent relationships.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5583 Human Sexuality
Description: Understanding human sexuality within a relational and developmental perspective, including physiological and psychosexual development and response, sexual relationships, sexual dysfunctions, treatment processes, and educational programming. Previously offered as FRCD 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5593 Sexuality & Aging
Prerequisites: Admission to the Great Plains IDEA Gerontology Program.
Description: Understanding of issues regarding sexuality and aging. Normative aspects of sexuality in later life and issues that arise that impact sexuality such as chronic illness, cognitive decline, and functional limits. Perspectives of aging persons who are active and independent in the community, to those who live in a variety of care settings. An interdisciplinary perspective on the interactions of the biological, psychological, social influences that shape our understanding of sexuality in later life. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5603 Pre-Practicum in Marriage and Family Therapy: Counseling Skills
Prerequisites: Admission to the marriage and family therapy specialization and consent of instructor.
Description: Pre-clinical experience for students in the marriage and family therapy (MFT) specialization, emphasizing counseling skills and structured observations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5612 Pre-Practicum in Marriage and Family Therapy: Group Processes
Prerequisites: Admission to marriage and family therapy specialization and consent of instructor.
Description: Pre-clinical experience for students in the marriage and family therapy specialization emphasizing group processes, designing and running therapy groups. Previously offered as FRCD 5612.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5613 Theoretical Models of Marriage and Family Therapy
Description: An introduction to the historical context of marriage and family therapy. An overview of the major schools of marriage and family therapy and emerging models. Previously offered as FRCD 5613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5623 Systems Theory and Applications to the Family
Description: Examination of the cybernetic roots and terminology used with general systems theory providing an understanding, appreciation and integration of the role of "systems" approaches to family theory and clinical practice. Previously offered as FRCD 5623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5633 Couples Treatment in Marriage and Family Therapy
Prerequisites: Graduate standing or consent of instructor.
Description: Focus on assessment of couples and the systemic interventions available to address common couple issues. Pre-marriage, divorce and remarriage, sexuality, domestic violence, infidelity, and gender. Previously offered as FRCD 5633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5643 Child and Adolescent Treatment in Marriage and Family Therapy
Prerequisites: Graduate standing or consent of instructor.
Description: An overview of the issues surrounding children and adolescents in marriage and family therapy including child abuse and neglect, drug abuse, oppositional behaviors, ADHD, and family structures and hierarchies. Assessment and treatment methods. Strategies for engaging families. Previously offered as FRCD 5643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5653 Systemic Approaches to Psychopathology and Psychopharmacology
Prerequisites: Graduate standing or consent of instructor.
Description: Overview of major mental disorders and other conditions that maybe the focus of clinical mental health treatment. Treatment issues and an introduction to psychopharmacology. Previously offered as FRCD 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5663 Professionalism and Ethics in Marriage and Family Therapy
Prerequisites: Graduate standing and consent of instructor.
Description: The development of the professional attitude and identity of a marriage and family therapist. The AAMFT Code of Ethics, family law, ethnicity, and gender issues, as related to the practice and profession of marriage and family therapy. Previously offered as FRCD 5663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5673 Family Dynamics of Addiction
Prerequisites: Graduate standing and consent of instructor.
Description: An examination of the theory and research related to addictive behaviors within couple and family relationships.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5683 Spirituality and Aging
Prerequisites: Admission to the Great Plains IDEA Gerontology Program.
Description: Spirituality in later life from developmental, ethical, multicultural, and applied perspectives. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5690 Marriage and Family Therapy Practicum
Prerequisites: Admission to the marriage and family therapy program and consent of instructor.
Description: Supervised clinical experience for students in the marriage and family therapy specialization. Previously offered as FRCD 5690. Offered for variable credit, 1-3 credit hours, maximum of 18 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 5693 Child Treatment Practicum in Marriage and Family Therapy
Prerequisites: Admission to the marriage and family therapy program and consent of instructor.
Description: Supervised clinical experience focusing on the treatment of children within a family context.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5703 History and Philosophy of Family and Consumer Sciences in Cooperative Extension
Prerequisites: Admission to the IDEA HDFS Family and Consumer Sciences Education MS program.
Description: Focus on the historical and philosophical foundations of Cooperative Extension, particularly the Family and Consumer Sciences programs and 4-H youth development programs. Designed for individuals who are currently working or who plan to work in Family and Consumer Sciences Cooperative Extension programs at the county, district, state, and/or federal level.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5713 Individual and Family Resource Management
Description: Survey course of personal finance and family resource management literature to provide an overview of how individuals and family members develop and exercise their capacity to obtain and manage resources to meet life needs. Resources include the self, other people, time, money, energy, material assets, space, and environment. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5723 Socioemotional and Cognitive Well-being Throughout Adulthood
Description: This course addresses cognitive, social, and emotional health in adulthood and later life including typical and atypical changes such as wisdom, dementia, coping, and depression. Contrasting theoretical frameworks and considering positions of access and resilience, students will examine personality, mental health, and cognitive and brain functioning during adulthood and review methods to enhance psychological health.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5733 Implementation of Community Programs for Older Adults
Description: This course addresses theoretical and practical aspects of community-based efforts to influence the well-being of older adults. Examines literature from gerontological, prevention science, human sciences, and community health approaches. Provides an overview of the program development, implementation, evaluation, and management of aging-related programs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5750 Seminar in Human Development and Family Science
Description: Current research in human development and family science. Critical study of classic and current research. Previously offered as FRCD 5750. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 5753 Leadership and Management of Community Service Programs
Prerequisites: Admission to the HDFS GPIDEA Graduate Program.
Description: An examination of leadership and management concepts related to the effective administration of community-based agencies. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5763 Adult Learners in Family and Consumer Sciences Programs
Prerequisites: Admission to the Great Plains IDEA Family and Consumer Sciences Education program.
Description: Development, administration, and evaluation of Family and Consumer Sciences programs focused on adult learners. Applications for Cooperative Extension are highlighted.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5773 Family Dynamics and Addiction Treatment
Prerequisites: HDFS 5673.
Description: Research, theory, and working with families with addiction across social contexts such as culture. Addresses techniques of prevention, intervention, family treatment, and recovery in individuals and family systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5783 Methods of Statistical Analysis in HDFS 1
Description: An overview and application of basic statistical concepts, models, and methods for the quantitative analysis of development and change. Course topics to include descriptive statistics, hypothesis testing, analysis of variance, chi-square, t-test, and bivariate correlations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5793 Methods of Statistical Analysis in HDFS 2
Prerequisites: HDFS 5783.
Description: Quantitative models of development and change derived from empirical research utilizing multivariate research design and procedures. Course topics to include multivariate regression techniques for experimental and non-experimental research in human sciences research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5803 Critical Science Issues in Family and Consumer Sciences Education
Prerequisites: Admission to the IDEA HDFS Family and Consumer Sciences Education MS program.
Description: Focus on critical science as a theoretical framework and as a practical/rational process for addressing significant and complex problems facing families. Application of principles of critical science to Family and Consumer Sciences Education professional practice and research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5810 Current Issues in Family and Consumer Sciences Education
Prerequisites: Admission to the Great Plains IDEA Family and Consumer Sciences Education program.
Description: Analysis of current issues specific to Family and Consumer Sciences Education. Web-based instruction. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5813 Practicum in Human Development and Family Science
Prerequisites: Admission to graduate study in HDFS, 9 hours of graduate credit in HDFS, and consent of instructor.
Description: Supervised experiences in child development, and family services or health-related settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5823 History and Philosophy of Family and Consumer Sciences Education
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Historical, philosophical, and legislative bases of Family and Consumer Sciences Education in Cooperative Extension Service, public schools, and higher education. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5833 Occupational Programs in Family and Consumer Sciences
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Planning and implementing occupational Family and Consumer Sciences programs and courses. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5843 Reading in the Content Areas of Family and Consumer Sciences Education
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Incorporating reading skills in Family and Consumer Sciences Cooperative Extension Service, public school, and higher education settings. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5853 Adolescent Learners in Family and Consumer Sciences Programs
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Exploration of adolescent cognitive, physical, social and emotional characteristics, with application to providing group and individual learning experiences in Cooperative Extension Service and public school settings. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5863 Exceptional Learners in Family and Consumer Sciences Programs
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Strategies for working with youth, adolescent, and adult exceptional learners in Cooperative Extension Service, public school, and higher education Family and Consumer Sciences programs. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5873 Technology in Family and Consumer Sciences Programs
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Incorporation of technology applications in Family and Consumer Sciences Cooperative Extension Service, public school, and higher education settings. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5883 Family and Consumer Sciences in a Pluralistic Society: Foundations and Issues
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Discussion of contemporary issues within the context of multicultural influences and cultural diversity in Cooperative Extension Service, public school, and higher education Family and Consumer Sciences settings. Critique of instructional materials and resources for Family and Consumer Sciences programs. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5893 Addressing Family Issues and Public Policy Through Family and Consumer Sciences Education
Prerequisites: Admission to the Great Plains IDEA Family and Consumer Sciences Education program.
Description: Assessment of how Family and Consumer Sciences Education professionals can impact family and community issues. The role of the educator in critically examining these issues through FCS programs. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5903 Instructional Methods in Family and Consumer Sciences
Description: Development of Family and Consumer Sciences Education instructional materials for both Cooperative Extension Service and public school settings. Observation hours required. May not be used for degree credit with HDFS 4913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5913 Foundations and Principles of Family and Community Services
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: An introduction to the field of family science and related professions that involve working with individuals and families in communities. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5923 Dynamics of Family Interaction
Prerequisites: Admission to the Great Plains IDEA Graduate Program.
Description: An examination of theories of family function and dysfunction, techniques of assessment, and models of family intervention. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5943 Development of Instructional Materials for Family and Consumer Sciences Programs
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Development of individual and group materials for youth, adolescent, and adult Family and Consumer Sciences programs in Cooperative Extension Service, public school, and higher education settings. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5953 Research Experience in Family and Consumer Sciences
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Development of a research project related to Family and Consumer Sciences in a Cooperative Extension Service, public school, or higher education setting. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5963 Evaluation and Assessment in Family and Consumer Sciences Programs
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Procedures for appraisal of individual growth and achievement in all subject areas in Family and Consumer Sciences Education for Cooperative Extension Service, public school, and higher education settings. Development of evaluative instruments for cognitive, affective, and psychomotor learning. Techniques for interpretation of data. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 5973 Administration of Family and Consumer Sciences Education Programs
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Emphasis on educational leadership and related issues in Cooperative Extension Service, public school, and higher education Family and Consumer Sciences settings. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5983 Techniques of Supervision in Family and Consumer Sciences Programs
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Philosophy, responsibilities, and techniques for supervising in Family and Consumer Sciences Cooperative Extension Service, public school and higher education settings. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

HDFS 5993 Special Topics in Family and Consumer Sciences Education: 4-H and FCCLA
Prerequisites: Admission to the HDFS Great Plains IDEA Graduate Program.
Description: Techniques for developing and managing 4-H and FCCLA programs as part of Cooperative Extension Service and public school Family and Consumer Sciences programs. Web-based Instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6000 Doctoral Dissertation
Prerequisites: Consent of instructor.
Description: Research in education and human sciences for the PhD degree under supervision of a graduate faculty member. Previously offered as FRCD 6000. Offered for variable credit, 1-12 credit hours, maximum of 30 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 6100 Doctoral Seminar in Human Development and Family Science
Description: Selected topics in human development and family science focusing on current theory, research, or application. Previously offered as HDFS 6101. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6110 Doctoral Directed Study in HDFS
Prerequisites: HDFS 5253, HDFS 5293, HDFS 5513, HDFS 5523 or equivalent and consent of instructor.
Description: Doctoral level directed individual study in human development and family science. Previously offered as FRCD 6110. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 6112 Teaching Seminar in Human Development and Family Science
Description: Introduction to teaching about development and relationships in higher education. Students will learn how to develop syllabi, present material, create innovative assignments, assess student work, and manage conflicts and difficult discussions in the classroom.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6113 Professional Development in HDFS
Description: Systematic introduction to the department faculty and research, doctoral program requirements and expectations and aspects of career development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6121 Teaching Practicum in Human Development and Family Science
Description: Application of the theories and methods learned in HDFS 6112, and receive regular peer and mentor observation and assessment of classes. Previously offered as HDFS 5190.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6123 Risk and Resilience in Human Development and Family Science
Prerequisites: HDFS 5213 and HDFS 5513.
Description: Integration of current research and theory in human development and family science to address current issues in individual and family risk and resilience.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6133 Advanced Research Methods in Human Development and Family Science
Prerequisites: One course in research methods and one in statistics.
Description: Research design and analysis of data appropriate to the areas of human development and family science. Previously offered as FRCD 6133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6143 Structural Equation Modeling for HDFS Applications
Prerequisites: HDFS 6133, REMS 6013 or equivalents.
Description: Introduction to structural equation modeling (SEM) with applications to longitudinal and grouped data typical of research in Human Development and Family Science. Includes elementary matrix algebra, measurement models (factor analysis), and latent path models, such as growth curve models. Applications using appropriate statistical software.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6153 Multilevel Modeling for HDFS Applications
Prerequisites: HDFS 6133 and REMS 6013 or equivalents.
Description: Introduction to advanced statistical methods for analyzing longitudinal and grouped data. Multilevel modeling is emphasized, with brief introductions to other advanced statistical procedures, such as survival analysis and developmental trajectory analysis. Models include occasions nested within persons and persons nested within groups. Applications using appropriate statistical software.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6190 Research Internship
Prerequisites: Consent of Instructor.
Description: Special research studies under the supervision of a graduate faculty member. Previously offered as FRCD 6190. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

HDFS 6223 Risk and Resilience in Human Development
Prerequisites: HDFS 5253 or HDFS 5293 or equivalent course.
Description: Critical analysis of research and theory on risk and resilience processes in human development across the life course. Emphasis on roles of families in enhancing resilience. Demonstration of application to selected aspects of individual development. Previously offered as FRCD 6223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6273 Parent-Child Relations
Description: Examination of theory and research related to parenting and the impact of parenting on the well-being of children, parents and the broader family system. Previously offered as HDFS 5143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6283 Seminar in Human Development
Prerequisites: HDFS 5213 and HDFS 5293.
Description: Selected topics in human development with special attention to recent research and current theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6363 Theories and Research in Early Communication Development
Prerequisites: HDFS 5213, HDFS 5223 or consent of instructor.
Description: Recent theories and research in language communication development, including receptive and active language and the relationship of language to early social and cognitive development. Previously offered as FRCD 6363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6523 Advanced Family Theory
Prerequisites: HDFS 5523.
Description: Family theory process, including logic, theory construction, and relating conceptual orientations to current research areas.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6553 Marital and Couple Relationships
Description: In-depth analysis of historical and contemporary research on developmental and relational processes in marital and couple relationships. Emphasis on research and theory addressing the nature, dynamics and developmental course of committed couple relationships.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6583 Seminar in Family Science
Prerequisites: HDFS 5513 or HDFS 5523 or consent of instructor.
Description: Current research and theory in selected topics in family science. Previously offered as HDFS 6580.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Human Dev & Family Sci

HDFS 6613 Contemporary Issues in Marriage and Family Therapy
Prerequisites: Admission to marriage and family therapy specialization.
Description: Critical issues facing students in the marriage and family therapy (MFT) specialization, while taking advantage of the unique expertise of clinical faculty. Professional seminar on dialogue with participants taking an active role in the learning process. Previously offered as FRCD 6613.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Discussion
Department/School: Human Dev & Family Sci

Industrial Engineering & Management (IEM)

IEM 2903 Introduction to Industrial Engineering
Prerequisites: UNIV 1111 with grade of "C" or better and Sophomore, Junior, or Senior Standing.
Description: Introduces students to enterprise/production systems from the perspective of industrial engineering. As a part of this introduction, the basic concepts and issues involved in professional practice will be discussed. Useful analytical methods and practices for collecting and working with data will be presented. Additionally, modern applications of industrial engineering practices will be introduced. After completion of this class, students will have the ability to describe and apply various industrial engineering methods in the manufacturing and service industries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 2911 Lean Six Sigma
Description: Students will learn problem-solving skills to drive process improvement within various organizational settings. Learn Six Sigma methodologies, advanced techniques, and statistical tools essential for leading successful projects will be presented. After completion of the course students will be prepared to take the Six Sigma Green Belt Certification exam.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 3103 Probability and Statistics for Engineers I
Prerequisites: MATH 2153 with grade of "C" or better.
Description: An introduction to key concepts and results in probability, random variables, discrete and continuous distributions, mathematical expectations, and joint probability distributions that support applications in industrial engineering and management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 3303 Design, Manufacturing and Inspection of Components
Prerequisites: (ENGR 1322 or ENGR 1332 or MET 1123) with minimum grade of "C" and (ENSC 3313 or MET 3343) with minimum grade of "C".
Description: Covers design, process physics, and inspection with emphasis on traditional and digital manufacturing. Topics include GD&T, measurement errors, casting, machining, welding, nontraditional and additive methods. Labs include SolidWorks, metrology, casting, machining, welding, AM, and digital inspection.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Industrial Engr & Mgmt

IEM 3403 Engineering Project Management
Prerequisites: Junior standing or Senior Standing.
Description: Engineering management and group issues involved in project planning and implementation. Topics addressed include project management methodologies and software, ethics and social responsibility, organizational structures, situational leadership, individual behavior and motivation, teamwork structures, processes, collaborative technologies, process management, organizational culture, and diversity and inclusion.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 3503 Engineering Economic Analysis
Prerequisites: MATH 2153 with grade of "C" or better or MATH 2133 with grade of "C" or better.
Description: Development and use of time value of money models. Bases for comparison of alternatives, including present worth, annual worth, rate of return and payout period methods. Decision-making among independent, dependent, capital-constrained and unequal-life projects. Replacement, breakeven and minimum cost analyses. Depreciation and depletion methods and their effect on corporate income taxes, leading to after-tax cash flow analysis. Introduction to financial reports.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 3513 Economic Decision Analysis
Prerequisites: MATH 2123 with grade of "C" or better or MATH 2144 with grade of "C" or better.
Description: Quantitative evaluation of investment alternatives for non-engineering majors. The role of interest in economic equivalence and in formulating economic comparisons based on present worth, annual equivalent, rate of return and payout criteria. Accounting, depreciation and income tax considerations. Benefit-cost and cost-effectiveness analysis. Cost estimation and allowance for variance in estimates. Not available for credit in industrial engineering curriculum.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 3523 Engineering Cost Information and Control Systems
Prerequisites: MATH 2144 with grade of "C" or better.
Description: Introduction to basic accounting concepts and operating characteristics of accounting systems relevant to engineering analysis and decision making. Principles of financial and managerial accounting, activity based costing, taxes and depreciation. Emphasis on interpretation and use of accounting information for decision-making.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 3703 Probability and Statistics for Engineers II
Prerequisites: IEM 3103 with grade of "C" or better.
Description: An introduction to key concepts and results in statistics, including confidence intervals and hypothesis tests for the mean and the variance, analysis of variance, linear regression, correlation, goodness of fit tests and categorical data analysis that support applications in industrial engineering and management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 3713 Software Programming for Data Analytics
Prerequisites: ENGR 1412 with grade of "C" or better.
Description: This course introduces basic concepts and applications that are important for understanding software programming in data analytics, such as raw data manipulation, exploratory analysis, and machine learning. The primary focus in this course is on programming ideas, algorithm toolboxes, implementations and applications of data analytics methods in industrial applications (e.g., manufacturing, healthcare). Programming will be done using Python and R with a focus on real-world data analytics problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 3813 Work Design, Ergonomics, and Human Performance
Prerequisites: ENSC 2113 with grade of "C" or better and IEM 2903 with grade of "C" or better and IEM 3103 with grade of "C" or better.
Description: Evaluation and design of work systems and processes employing humans. Emphasis on simultaneously achieving high productivity and employee health, safety and satisfaction.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Industrial Engr & Mgmt

IEM 4010 Industrial Engineering Projects
Prerequisites: Consent of school head.
Description: Special undergraduate projects and independent study in industrial engineering. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 4013 Operations Research
Prerequisites: MATH 3013 with grade of "C" or better.
Description: Introduction to operations research, analytics, and mathematical optimization with an emphasis on topics in linear, integer, and network optimization. Effective model formulation and software solution of strategic, tactical and operational problems encountered in manufacturing, and service industries. Covers the simplex method, duality theory, sensitivity analysis, branch-and bound, network simplex, and Dijkstra's algorithm. Previously offered as IEM 4014.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4020 Undergraduate Engineering Practicum
Prerequisites: Consent of IEM adviser and satisfactory completion of at least 12 hours of IEM 3000- or IEM 4000-level courses.
Description: Professionally supervised experience in real life problem solving involving industrial projects for which the student assumes a degree of professional responsibility. Activities approved in advance by the instructor. May consist of full- or part-time engineering experience, on-campus or in industry, or both, either individually or as a responsible group member. Periodic reports both oral and written required as specified by the adviser. Offered for variable credit, 1-3 credit hours, maximum of 4 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 4103 Quality Control and Reliability Analysis
Prerequisites: IEM 3703 with grade of "C" or better.
Description: Performance excellence in an enterprise, including relationships between industrial engineering and quality control. Statistical quality control concepts to measure, monitor, diagnose, and improve performance at the enterprise level, the operational level, and the project level. Perform basic reliability analysis. Quantitative and qualitative quality tools to solve problems and capture opportunities for improvement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4113 Experimental Design and Analysis for Engineering
Prerequisites: IEM 3703 with grade of "C" or better.
Description: Introduces the design of experiments (DoE) methods with statistical analysis for the purpose of process/system improvement in engineering. The covered DoE methods include single-factor & multiple-factor design, factorial design, blocked design, and fractional design. The related statistical analysis including hypothesis test, analysis of variance (ANOVA), linear regression, and response surface will also be introduced with various examples in engineering. Recommended statistical software is R.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4163 Service Systems and Processes
Prerequisites: IEM 3103 with grade of "C" or better and IEM 3503 with grade of "C" or better.
Description: Design and analysis of service systems and processes from the perspective of industrial engineering and engineering management. Application of basic industrial engineering principles and tools applied to service systems. Basics of service quality and productivity, including metrics, measurement and improvement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4203 Facilities and Material Handling System Design
Prerequisites: IEM 3703 with grade of "C" or better and IEM 4013 with grade of "C" or better.
Description: Design principles and analytical procedures for determining facility location and location of physical assets within a facility. Introduction to material-handling concepts, technologies and methods. Considerations include production processes, product volume, material flow and information flows.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4383 Additive Manufacturing: Fundamentals, Processes, Applications, and Implications
Prerequisites: (ENGR 1322 with a "C" or better OR ENGR 1332 with a "C" or better OR MET 1123 with a "C" or better) AND (ENSC 3313 with a "C" or better OR MET 3343 with a "C" or better OR IEM 3303 with a "C" or better OR MAE 3123 with a "C" or better).
Description: This course covers fundamental, advanced, and emerging additive manufacturing (AM) topics. It has 4 modules: 1) AM fundamentals, 2) processes & capabilities, 3) AM applications, and 4) business & societal implications. Students gain design and process planning skills, hands-on experience with popular AM processes, learn about new applications in industries like medical and aerospace, and explore the business side of AM implementation and industry disruption. May not be used for degree credit with IEM 5383.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Industrial Engr & Mgmt

IEM 4413 Industrial Organization Management
Prerequisites: IEM 2903 with minimum grade of "C" and IEM 3403 with minimum grade of "C".
Description: Issues, concepts, theories and insights of engineering management and applications emphasizing effective performance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4613 Production Planning and Control Systems
Prerequisites: IEM 4013 with grade of "C" or better.
Description: Concepts of planning and control for production and control systems. Design of operation planning and control systems. Techniques used in demand forecasting, operations planning, inventory control, scheduling, and progress control.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4623 Supply Chain and Logistics
Prerequisites: IEM 3103 with grade of "C" or better and IEM 4013 with grade of "C" or better.
Description: Introducing basic concepts and methods in supply chain management. Developing managerial insights into supply chain strategies in the global economy. Measuring supply chain performance under dynamic market conditions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4693 Decentralized Blockchain Computing for Engineering Applications
Prerequisites: ENGR 1412 with minimum grade of C or CS 2433 with minimum grade C.
Description: This course covers fundamental, advanced and emerging paradigms in blockchain computing. Students gain basic understanding of distributed and decentralized computing paradigms; develop skills for deploying scalable, enterprise ML and analytics applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4713 Systems Simulation Modeling
Prerequisites: IEM 3703 with grade of "C" or better and IEM 4013 with grade of "C" or better.
Description: Simulation of discrete-event systems, including problem formulation, translation to a computer model, and use of a model for problem solution as well as concepts of random variable selection and generation, model validation and statistical analysis of results.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Industrial Engr & Mgmt

IEM 4723 Information Systems Design and Development
Prerequisites: Junior Standing or Senior Standing.
Description: Overview of IS/IT concepts. Systems development methodology, modeling methods, and software tools for the design and development of information systems, especially relational database applications. Data modeling using the Entity Relationship Diagram (ERD). Implementing and manipulating relational databases using SQL and MS Access. Process modeling using the UML Activity Diagram. Introduction to Enterprise Resource Planning and Geographic Information systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4783 Applied Statistical Analysis in R for Engineers
Prerequisites: IEM 3703 or equivalent with minimum grade of "C".
Description: The overall goal of this course is to provide an applied overview to statistical learning for real industrial engineering problems using R programming. Topics In this course cover advanced linear and non-linear methods of statistical learning such as multivariate regression, mixed-effects regression, advanced logit regression, clustering methods, generalized additive models, tree-based methods, support vector machines. and Bayesian methods. May not be used for degree credit with IEM 5783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4823 Human Factors Engineering
Prerequisites: IEM 3813 with minimum grade of "C".
Description: Design-focused course that introduces students to human factors engineering, human-centered design, and cognitive engineering; provides an overview of human factors psychology, how the human body and its limitations affect engineering design and then discuss how human factors engineering design leads to a reduction of human error in complex systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4913 Senior Design Projects
Prerequisites: Terminal semester only and IEM majors only and IEM 3403 with grade of "C" or better and IEM 3503 with a grade of "C" or better.
Description: Student teams work on professional-level engineering projects selected from a wide range of participating organizations. Projects are equivalent to those normally experienced by beginning professionals and require both oral and written reports. Normally taken during student's last semester of undergraduate work.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Industrial Engr & Mgmt
Additional Fees: IEM 4913 indust Equip Use fee of $80 applies.

IEM 4931 Industrial Engineering and Management Seminar
Prerequisites: Senior standing.
Description: Designed to orient seniors to their professional work environment. Topics include placement procedures, resume construction, interviewing skills, professional dress, graduate school, professional societies and registration, personal management of time and money, and job-related expectations. Taught by senior faculty; utilizes outside speakers.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4953 Industrial Assessment and Improvement
Prerequisites: Senior standing and consent of instructor.
Description: Plant assessment and improvement-based concepts, strategies, and tools for manufacturing operations. Emphasis is on small to medium-sized manufacturing operations. Issues include energy, water, waste, quality, and productivity analysis across the organization from a systems perspective. Justification of improvement projects and measurement of results. May not be used for degree credit with IEM 5953 or MET 4953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 4990 Selected Topics in Industrial Engineering and Management
Prerequisites: Consent of instructor.
Description: Study of selected contemporary topics in industrial engineering and management, including operations research; quality; manufacturing systems; engineering management; enterprise systems and supply chains; facilities, energy, and environmental management. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 5000 Master's Research and Thesis
Prerequisites: Approval of major adviser.
Description: Research and thesis for master's students. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 5003 Probability and Statistics for Engineers
Prerequisites: STAT 4033 or IEM 3103.
Description: Probability and statistical topics and methods used in various areas of industrial engineering including random numbers, probability theory, conditional probabilities, parameter estimation, confidence intervals, hypothesis testing, and regression models.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5010 Industrial Engineering Projects
Prerequisites: Consent of school head and approval of major adviser.
Description: Special graduate projects and independent study in industrial engineering. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 5013 Introduction to Optimization
Prerequisites: IEM 4013 or equivalent.
Description: Introduction to mathematical optimization with an emphasis on linear, integer, network, and convex optimization. Effective formulization techniques, basic mathematical and algorithmic concepts, and software solution of large-scale problems arising in the practice of operations research, industrial and systems engineering, management sciences, and analytics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5020 Graduate Engineering Practicum
Prerequisites: Consent of School Head, approval of IEM advisor, and satisfactory completion of two consecutive regular (Fall/Spring) semesters.
Description: Professionally supervised experience in a real-life problem involving authentic projects for which the student assumes a degree of professional responsibility. Activities must be approved in advance by the student's advisor. May consist of full or part-time engineering experience, on-campus or in industry, or both, either individually or as a responsible group member. Periodic reports, both oral and written, required as specified by the advisor. All eligible IEM 5020 credit hours should be included in the Plan of Study. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 5063 Network Optimization
Prerequisites: IEM 5013 or equivalent.
Description: Network flows and combinatorial optimization models and algorithms with an emphasis on mathematical and algorithmic fundamentals. Covers basics of graph theory, algorithmic analysis, and complexity theory. Covers Classical Algorithms for shortest paths, minimum spanning trees, max-flow and min-cut, min-cost flows; P versus NP, traveling salesman problem, local search, metaheuristics, Christofides algorithm. Previously offered as IEM 6013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5083 Data Science and Applications
Prerequisites: Minimum grade of "B" in IEM 5003 or equivalent and Math 3013 or equivalent.
Description: Touches on linear algebra concepts of eigenvalues SVD with applications to optimization, regression analysis, and classification. Reviews linear, logistic regression techniques, including geometric and statistical interpretations, and hypothesis tests, while illustrating least square problems through optimization. Introduces neural nets, backpropagation, and gradient descent, with kernel functions and SVMs, and PCA. Projects and problems connect theory to industrial engineering applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5103 Breakthrough Quality and Reliability
Prerequisites: IEM 5003 of equivalent.
Description: Performance excellence in an enterprise, including relationships between industrial engineering and quality control. Statistical quality control concepts to measure, monitor, diagnose, and improve performance at the enterprise level, the operational level, and the project level. Perform basic reliability analysis. Quantitative and qualitative quality tools to solve problems and capture opportunities for improvement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5113 Strategic Quality Leadership
Prerequisites: STAT 4013 and IEM 5003.
Description: Quality-related strategies. Critical elements that differentiate high performing organizations from their competitors. Delivering value to customers. Quality leadership, strategic planning, customer value, learning organizations, knowledge management, quality systems and business results.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5123 Service Quality
Prerequisites: STAT 4013 or equivalent.
Description: Theory and application of service quality, including characteristics of services (intangibility, heterogeneity, perishability and inseparability of production and consumption), dimensions of service quality, measurement methodologies for service quality and improvement methodologies for service quality. Certification and accreditation processes for service industries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5133 Stochastic Processes
Prerequisites: MATH 2233, MATH 3013, and IEM 5003 or STAT 5123.
Description: Definition of stochastic processes, probability structure, mean and covariance function, the set of sample functions. Renewal processes, counting processes, Markov chains, birth and death processes, stationary processes and their spectral analyses. Same course as STAT 5133 & MATH 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5143 Reliability and Maintainability
Prerequisites: STAT 4033 and IEM 5003.
Description: Probabilistic failure models of components and systems. Detailed study of reliability measures, and static and dynamic reliability models. Classical and Bayesian reliability testing for point and interval estimation of exponential and Weibull failures. Reliability optimization through allocation and redundancy. Fundamentals of maintainability. Previously offered as IEM 6113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5153 Process Design and Integration
Prerequisites: STAT 4033 or equivalent.
Description: Process design, integration, control, and improvement within and between enterprises. Analytical and systems approaches to address physical and statistical characterization of inputs, transformations, and outputs. Modeling issues, including process mapping, cause and effect analysis, and impact projection. Purpose, linkages, value, leverage, measurement, creativity and leadership.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5203 Facility Location, Warehousing and Transportation
Prerequisites: IEM 5003 and IEM 5013.
Description: Analytical models for single and multi-facility location problems. Algorithms for network location problems including the median, center, and covering problems. Storage policies such as dedicated, randomized and class-based and their relationship to the warehouse layout problem. Order picking and routing in warehouses. Warehouse material handling and storage/retrieval systems. Overview of the Vehicle Routing Problem (VRP). Clark and Wright heuristic for the single-depot VRP problem.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5350 Industrial Engineering Problems
Description: A detailed investigation into one area of industrial engineering with a required written report. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 5383 Additive Manufacturing: Fundamentals, Processes, Applications, and Implications
Prerequisites: (ENGR 1322 with a "C" or better OR ENGR 1332 with a "C" or better OR MET 1123 with a "C" or better) AND (ENSC 3313 with a "C" or better OR MET 3343 with a "C" or better OR IEM 3303 with a "C" or better OR MAE 3123 with a "C" or better) OR equivalents.
Description: This course covers fundamental, advanced, and emerging additive manufacturing (AM) topics. It has 4 modules: 1) AM fundamentals, 2) processes & capabilities, 3) AM applications, and 4) business & societal implications. Students gain design and process planning skills, hands-on experience with popular AM processes, learn about new applications in industries like medical and aerospace, and explore the business side of AM implementation and industry disruption. May not be used for degree credit with IEM 4383.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Industrial Engr & Mgmt

IEM 5413 Engineering Entrepreneurship
Description: Advanced study of engineering entrepreneurship in the technical organization including: new product evaluation and selection, technology commercialization process, business plan preparation, intellectual property, patent search and discovery, new enterprise development, market analysis, and capital investment procurement strategies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5503 Financial and Advanced Capital Investment Analysis
Prerequisites: IEM 3503, IEM 4013, STAT 4033 or IEM 3103 or equivalent.
Description: An understanding of financial concepts and markets, and an advanced treatment of proper methods of capital project selection under risk and uncertainty. Decision making under capital rationing. Financial environment and valuing securities, representing cash flows, selecting investments, avoiding common pitfalls, evaluating timing consideration, depreciation and corporate taxation, replacement analysis, and incorporating risk and uncertainty.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5603 Project Management
Prerequisites: IEM 3403 or equivalent.
Description: A systems approach to planning, organizing, scheduling and controlling projects. The behavioral and quantitative aspects of project management. Importance of working with personnel as well as technology. Project management software utilized.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5613 Integrated Manufacturing Control Systems
Prerequisites: IEM 4613.
Description: Advanced treatment of planning and control philosophies and techniques for manufacturing and production systems. Approaches focusing on demand-driven control and achieving competitive advantage through manufacturing. Material requirements planning, capacity planning, shop floor control, master scheduling, production planning and demand management. Just-in-time and the theory of constraints.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5633 Advanced Production and Inventory Control
Prerequisites: IEM 5013 and IEM 5763.
Description: Advanced concepts and quantitative techniques used in production planning and inventory control, including static and dynamic scheduling of machines and cells, deterministic and stochastic inventory control, multi-echelon supply chain management, demand forecasting, and revenue management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5653 Data Engineering
Prerequisites: (STAT 5253 or STAT 5123 or IEM 5003) or equivalent with minimum grade of "C" and IEM 5083 or equivalent with minimum grade "C" and Intermediate knowledge of Python and R.
Description: The course focuses on advanced data engineering and data mining under data-rich scenarios. This course covers a collection of methods including a review of supervised learning, detailed discussions of unsupervised learning, and a series of data engineering tools such as data visualization and preprocessing. Cutting-edge data mining methods will also be introduced. Real-world data sets will be used to showcase the application of the methods in various areas such as manufacturing, healthcare, and agriculture. Same course as MATH 5653 and STAT 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5683 Advanced Data Analytics in Industrial Engineering
Prerequisites: IEM 5003 with a "C" or better.
Description: The course focuses on advanced data analytics methods tailored for engineering applications. Foundational topics include probability and statistics and generalized linear regression. The course covers neural networks, deep learning, and reinforcement learning along with the interpretability of models and considerations for data-driven decision-making. The methods will be taught while solving real-world problems (such as demand forecasting, failure prediction, defect detection, healthcare analytics, etc.).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5693 Decentralized Blockchain Computing for Engineering Applications
Prerequisites: Minimum grade of "C" in ENGR 1412 or CS 2433 or equivalents.
Description: The course covers fundamental, advanced and emerging paradigms in blockchain computing. Students gain basic understanding of distributed and decentralized computing paradigms; develop skills for deploying scalable, enterprise ML and analytics applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5703 Discrete System Simulation
Prerequisites: IEM 5003.
Description: Discrete-event systems via computer simulation models. Model building and the design and analysis of simulation experiments for complex systems. Application to a variety of problem areas. Use of simulation languages and related software tools.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5723 Data, Process and Object Modeling
Prerequisites: Graduate standing or consent of instructor.
Description: Systems development life cycle and methodology. Structured and object-oriented analysis and design techniques. Data modeling using the Entity-Relationship Diagram and IDEF1x. Data normalization techniques. Relational database implementation using SQL and MS Access. Object-oriented analysis and design using the Unified Process and the Unified Modeling Language (UML). Process modeling using the UML Activity Diagram and Petri nets.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5743 Information Systems and Technology
Prerequisites: Graduate standing or consent of instructor.
Description: For current and potential engineering and technology managers. Knowledge of information systems and technology to lead the specification, selection, implementation, and integration of information technology in manufacturing and service organizations. Management issues involved in the use of information technology in organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5763 Supply Chain Strategy
Prerequisites: IEM 4613 or equivalents.
Description: Supply chain strategy including the philosophical base of business practice and the analytical base of modeling. Supply chain strategy, including key objectives and financial considerations, supply chain dynamics, supply chain performance measurement, supply chain integration, characteristics of different supply chains and supply chain performance modeling.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5783 Applied Statistical Analysis in R for Engineers
Prerequisites: IEM 3703 or equivalent
Description: The overall goal of this course is to provide an applied overview to statistical learning for real industrial engineering problems using R programming. Topics In this course cover advanced linear and non-linear methods of statistical learning such as multivariate regression, mixed-effects regression, advanced logit regression, clustering methods, generalized additive models, tree-based methods, support vector machines. and Bayesian methods. May not be used for degree credit with IEM 4783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5803 Human Factors Engineering
Prerequisites: Graduate Student Standing
Description: Design-focused course that introduces students to human factors engineering, human-centered design, and cognitive engineering; provides an overview of human factors psychology, how the human body and its limitations affect engineering design and then discuss how human factors engineering design leads to a reduction of human error in complex systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5813 Performance Measurement Systems
Prerequisites: IEM 3813 or equivalent.
Description: Strategies and methods to define, measure, and apply individual, group- and organizational-level performance metrics in a variety of service and production contexts. Implementation and effective use of metrics. Measurement's role in a management system, managerial decision styles and preferences, operational definitions of performance, processes for identifying and applying metrics, performance measurement tools and techniques, data collection, portrayal of quantitative and qualitative information, and the role of computer technology in measurement system application.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5953 Industrial Assessment and Improvement
Prerequisites: Senior standing and consent of instructor.
Description: Plant assessment and improvement-based concepts, strategies, and tools for manufacturing operations. Emphasis is on small to medium-sized manufacturing operations. Issues include energy, water, waste, quality, and productivity analysis across the organization from a systems perspective. Justification of improvement projects and measurement of results. May not be used for degree credit with IEM 4953 or MET 4953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 5990 Special Topics in Industrial Engineering and Management
Prerequisites: Consent of instructor.
Description: Study of selected contemporary topics in industrial engineering and management including operations research; quality and reliability; manufacturing systems; engineering management; enterprise systems and supply chains; facilities, energy, and environmental management. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 6000 Doctoral Research and Dissertation
Prerequisites: Approval of major adviser and advisory committee.
Description: Independent research for PhD dissertation requirement under direction of a member of the Graduate Faculty. Offered for variable credit, 1-15 credit hours, maximum of 30 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 6033 Linear Optimization
Prerequisites: Concurrent Prerequisite IEM 5013 or consent of instructor.
Description: Mathematical theory of linear optimization and the implications for algorithm development. Fundamentals of convex analysis, polyhedral sets, development of the simplex method, Farkas' lemma, development of duality theory, sensitivity analysis, Dantzig-Wolfe decomposition, Benders decomposition, interior point algorithms. Previously offered as IEM 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 6043 Nonlinear Optimization
Prerequisites: IEM 6033 or consent of instructor.
Description: Mathematical foundations of nonlinear optimization theory and algorithms. Introduction to convex analysis, local/global optima, optimality conditions, and their implications for model and algorithm development. Convex functions and generalizations, Fritz John and Karush-Kuhn-Tucker optimality conditions, constraint qualifications, Lagrangian duality and saddle point optimality conditions, gradient-based and quasi-Newton methods for unconstrained optimization. Previously offered as IEM 5043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 6053 Integer and Combinatorial Optimization
Prerequisites: Concurrent prerequisites. IEM 5063, IEM 6033, or consent of instructor.
Description: Theory, algorithms, and applications of discrete optimization. Binary, pure, and mixed-integer linear optimization formulations, relaxations; preprocessing, branch and bound, formulation strength, polynomial equivalence of separation and optimization; theory of polyhedra, convex hulls and facets, valid inequalities for pure and mixed-integer problems, lifting, perfect formulations, extended formulations. Previously offered as IEM 6023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 6063 Optimization Under Uncertainty
Prerequisites: IEM 5013, IEM 6033, IEM 5003 or consent of instructor.
Description: Introduction to concepts, principles, and techniques for optimization under uncertainty. Formulating two-stage stochastic linear and integer programs; sample average approximation and decomposition methods; conditional value-at-risk and chance-constrained optimization; robust linear optimization, robust conic optimization, and robust multi-stage optimization; distributionally robust and data-driven optimization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 6110 Special Problems in Industrial Engineering
Prerequisites: Consent of school head and approval of major adviser.
Description: Special problems in industrial engineering and management under supervision of a member of the Graduate Faculty. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

IEM 6123 Queuing Systems: Theory and Manufacturing Applications
Prerequisites: IEM 5003, STAT 5133 or consent of instructor.
Description: Review of probability, stochastic processes, and Markov chains. Single-server and multi-server exponential queuing models. Queuing models with Poisson arrivals and general service times. Product form queuing network models: open and closed network models, mean value analysis algorithms for closed models, and single class and multiclass models. Approximations for general single server queues and non-product form networks. Applications of queuing models in the performance analysis of transfer lines, automatic assembly systems, and flexible manufacturing systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Industrial Engr & Mgmt

IEM 6903 IEM Doctoral Seminar
Description: The IE&M Doctoral Seminar is designed to train the doctoral student in the doctoral dissertation research process and is normally taken in the first year of the student's program. The course involves significant work outside the classroom, under the supervision of the student's research advisor. The class meetings will be used for some formal instruction on research methods/process, discussion of current research in IEM lead by select faculty, guest speakers, and presentations by students.
Credit hours: 3
Contact hours: Lecture: 1 Contact: 3 Other: 2
Levels: Graduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Industrial Engr & Mgmt

IEM 6990 Advanced Topics in Industrial Engineering and Management
Prerequisites: Consent of instructor.
Description: Advanced and emerging topics of interest to PhD-level students in Industrial Engineering and Management are discussed. Offered for variable credit, 1-6 credit hours, maximum of 18 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Industrial Engr & Mgmt

Interdisciplinary Toxicology (ITOX)

ITOX 5103 Biochemical and Molecular Toxicology
Prerequisites: Graduate standing; consent of instructor.
Description: In-depth overview of biochemical and molecular mechanisms of interactions between exogenous chemicals and living systems. Transport, distribution, elimination and alteration of exogenous chemicals within the body and mechanisms whereby exogenous chemicals disrupt biochemical processes critical for cell/organ/organismal integrity and function. Same course as VBSC 5103 and CBSC 5103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5203 Bioinformatics
Prerequisites: MICR 3033 or BIOC 3653 or equivalent.
Description: Fundamental concepts of biological sequence information and inferential techniques to assign structure, function, and evolutionary relationship among genes and proteins. No prior programming necessary, but familiarity with computers assumed. May not be used for degree credit with MICR 4203. Same course as MICR 5203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5213 From Molecules to Ecosystems
Prerequisites: Graduate standing; consent of instructor.
Description: An integrated systems-based approach to toxicology from molecular, cellular, organ, organismal, and ecological perspective. Same course as CBSC 6213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5282 Methods of Forensic Science
Description: Advanced-level laboratory course in which students apply knowledge from earlier course work in a hands-on setting and employ fundamental techniques and methods related to forensic biology, forensic microbiology, forensic pathology, and forensic toxicology. Same course as FRNS 5282.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Graduate
Schedule types: Lab
Department/School: Dean of Veterinary Med

ITOX 5303 Organismal Ecotoxicology
Prerequisites: Consent of instructor.
Description: Comparative study of the major groups of environmental contaminants (e.g. heavy metals, PCB's, insecticides) and an introduction to the basic theories, principles and techniques associated with the study of contaminant fate and effects on organisms. Same course as ZOOL 4303 and ZOOL 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5343 Population and Community Toxicology
Prerequisites: Course in ecology strongly recommended.
Description: Examines the exposure of animals to environmental contaminants and resulting effects at the individual through community level. The dynamic nature of exposure to contaminants will be of particular interest in this course. For example, how do the natural history traits of a species either protect it from exposure, or enhance its potential for exposure to contaminants? Topics will range from the historical perspectives to ecotoxicology to study design and risk assessment. Same course as ZOOL 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5363 Principles of Toxicology
Prerequisites: A course in chemistry and physiology.
Description: Basic concepts in toxicology such as chemical partitioning, dose response, toxicokinetics, toxidynamics, and bioavailability. Particular focus on the molecular and cellular mechanisms of toxicity of a few representative natural and man-made compounds. Case studies used to understand real-life scenarios. No credit for students with credit in BIOL 4363. Same course as BIOL 5363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5423 Techniques in Environmental Toxicology
Prerequisites: Organic chemistry or consent of instructor.
Description: Practical understanding of modern techniques used to quantify exposure and effects of environmental toxicants. Laboratory topics include gas chromatography, HPLC, atomic absorption spectroscopy, immunoassay, and toxicity testing. Same course as ZOOL 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5523 Forensic Toxicology
Description: Introduction of fundamental aspects of forensic toxicology and emphasis on major subfields of postmortem forensic toxicology, human performance toxicology and forensic drug testing. Examination of methodologies and analyses associated with these three major subfields. Same course as FRNS 5523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5543 Advanced Forensic Toxicology
Prerequisites: FRNS 5523.
Description: Familiarizes the student with advanced aspects of forensic toxicology in view of current forensic toxicological trends. Covers risk assessment principles, factors in pharmacokinetics, weapons of mass destruction, and integrating concepts with current applications. Same course as FRNS 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5801 Nonclinical Drug Development
Prerequisites: Graduate standing and consent of instructor.
Description: This course will cover the basic to highly-regulated concepts in nonclinical drug development including pharmacology, pharmacokinetics, and toxicology, along with topics in chemistry manufacturing and controls. Same course as CBSC 5801.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5802 Experimental Principles and Approaches
Prerequisites: Graduate standing and consent of instructor.
Description: A review of experimental principles and approaches essential for design, conduct and analysis of research. Same course as VBSC 5802 and CBSC 5802.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 5902 Toxicology of Chemical Warfare and Chemical Terrorism
Prerequisites: Graduate standing and consent of IOR.
Description: The course will review the history and current issues related to the use of chemicals as agents of warfare and terrorism. Students will participate in weekly roundtable lectures/discussions and review publications related to various toxicological issues surrounding these chemicals. Same course as CBSC 5902.
Credit hours: 2
Contact hours: Lecture: 1 Contact: 2 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Veterinary Med

ITOX 6223 Xenobiotic Disposition
Prerequisites: Graduate standing; consent of instructor.
Description: Discussion of xenobiotic absorption, distribution, metabolism, and excretion. Analysis of xenobiotic concentration-time data using pharmacokinetic software. Same course as CBSC 6223.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Dean of Veterinary Med

ITOX 6543 Environmental Toxins of the Brain
Prerequisites: Consent of instructor.
Description: Introduces the fundamental aspects of neurotoxicology using both cellular and molecular approaches in neurochemistry and toxicology. Same course as BIOM 6543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

ITOX 6820 Selected Topics in Biochemistry
Prerequisites: BIOC 5853.
Description: Recent developments in biochemistry. Subject matter varies from semester to semester; students should inquire at the department office before enrolling. Same course as BIOC 6820. Offered for variable credit, 1-3 credit hours, maximum of 15 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Veterinary Med

Japanese (JAPN)

JAPN 1713 Elementary Japanese I (F)
Description: Pronunciation, conversation, grammar and reading. Not for native speakers per University Academic Regulation 4.9. Previously offered as JAPN 1115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

JAPN 1813 Elementary Japanese II (F)
Prerequisites: JAPN 1713 or equivalent proficiency.
Description: Reading, the writing system, culture, grammar, conversation. Not for native speakers per University Academic Regulation 4.9. Previously offered as JAPN 1225.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

JAPN 2713 Intermediate Japanese I (F)
Prerequisites: JAPN 1813 or equivalent proficiency.
Description: Reading, the writing system, culture, grammar, conversation. A continuation of JAPN 1813. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

JAPN 2813 Intermediate Japanese II
Prerequisites: JAPN 2713 or equivalent proficiency.
Description: Oral and written practice of modem Japanese. A continuation of JAPN 2713. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

JAPN 3723 Advanced Readings in Japanese
Prerequisites: JAPN 2813 or equivalent proficiency.
Description: Designed to increase facility and naturalness of delivery in dialogue. Development of general oral and aural proficiency. Previously offered as JAPN 3133 and JAPN 4713. Same course as JAPN 4713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

JAPN 3823 Advanced Japanese II
Prerequisites: JAPN 3723.
Description: Designed to increase facility and naturalness of delivery in dialogue. Development of general oral and aural proficiency. Previously offered as JAPN 3013 and JAPN 4813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

Jazz (JAZZ)

JAZZ 1221 Jazz Class Piano
Description: JAZZ 1221 introduces students to the basics of jazz keyboard voicings.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

JAZZ 2010 Applied Jazz Lessons
Prerequisites: Approval of instructor.
Description: Applied Jazz Lessons are open to both music majors and non-music majors. Offered for variable credit, 1-4 credit hours, maximum of 20 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

JAZZ 2773 History of Jazz (H)
Description: Elements and stylistic features of jazz, its evolution and its impact on society. Same course as MUSI 2773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
General Education and other Course Attributes: Human Heritage & Cultures

JAZZ 3010 Applied Jazz Lessons
Prerequisites: Pass Upper-Division Exam and JAZZ 2010.
Description: Applied Jazz Lessons are open to both music majors and non-music majors. Offered for variable credit, 1-4 credit hours, maximum of 20 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

JAZZ 3610 Jazz Orchestra
Prerequisites: Audition and approval of instructor.
Description: Jazz Orchestra is open by audition to both music majors and non-music majors and is designed to provide training in the many styles of jazz large ensemble performance. May not be used for degree credit with JAZZ 5610. Previously offered as JAZZ 3611. Offered for fixed credit, 1 credit hour, maximum of 8 credit hours.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

JAZZ 3620 Jazz Ensemble
Prerequisites: Audition and approval of instructor.
Description: Jazz Orchestra is open by audition to both music majors and non-music majors and is designed to provide training in the many styles of jazz large ensemble performance. May not be used for degree credit with JAZZ 5620. Previously offered as JAZZ 3621. Offered for fixed credit, 1 credit hour, maximum of 8 credit hours.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

JAZZ 4002 Jazz Theory I
Prerequisites: Instructor Consent.
Description: Jazz Theory I introduces students to the fundamentals of functional jazz harmony, jazz forms, jazz keyboard voicings, and chord/scale relationships. Students will be expected to know all twelve major scales on their principal instrument prior to enrolling in this course.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

JAZZ 4012 Jazz Theory II
Prerequisites: A grade of "C" or higher in JAZZ 4002. Passing a proficiency exam can be used for placement directly into this course.
Description: Jazz Theory II is classroom instruction designed to familiarize students with basics of common jazz melodic devices and solo transcription. May not be used for degree credit with MUSI 2563.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

JAZZ 4102 Jazz Arranging & Composition I
Prerequisites: Jazz Theory I with a "C" or better.
Description: Jazz Arranging and Composition I introduces students to compositional techniques and arranging techniques for small group jazz. Students utilize notation software to compose, arrange, and notate. May not be used for degree credit with JAZZ 5102.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

JAZZ 4112 Jazz Arranging and Composition II
Prerequisites: JAZZ 4102 with a grade of "C" or better.
Description: JAZZ 4112 is a continuation of JAZZ 4102. JAZZ 4112 introduces students to composition and arranging techniques for a large jazz ensemble consisting of four trumpets, four trombones, five saxes, guitar, piano, bass, and drums.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

JAZZ 4600 Jazz Combos
Prerequisites: Audition and approval of instructor.
Description: Jazz Combos are open by audition to both music majors and non-music majors and is designed to provide training in the many styles of jazz large ensemble performance. May not be used for degree credit with JAZZ 5600. Previously offered as JAZZ 4601. Offered for fixed credit, 1 credit hour, maximum of 8 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

JAZZ 4610 Rhythm Section Class
Prerequisites: Audition and approval of instructor.
Description: Rhythm Section Class is open, by audition, to both music majors and non-music majors and is designed to provide training in the many styles of jazz small ensemble performance. Previously offered as JAZZ 4611. Offered for fixed credit, 1 credit hour, maximum of 8 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

JAZZ 4972 Jazz Styles and Analysis
Prerequisites: JAZZ 4012 Jazz Theory II with a grade of "C" or higher.
Description: JAZZ 4972 Jazz Styles & Analysis studies the most common song form types found in jazz (12-bar blues and rhythm changes). More advanced scales are taught. Additionally, students are required to present three transcription projects.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

JAZZ 5002 Jazz Theory I
Prerequisites: Students must know all twelve major scales on their principle instrument prior to enrolling in this class.
Description: Jazz Theory I introduces students to the fundamentals of functional jazz harmony, jazz forms, jazz keyboard voicings, and chord/scale relationships.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

JAZZ 5010 Applied Jazz Lessons
Prerequisites: Approval of instructor.
Description: Applied Jazz Lessons are open to both music majors and non-music majors.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

JAZZ 5012 Jazz Theory II
Prerequisites: A grade of "C" or higher in JAZZ 5002. Passing a proficiency exam can be used for placement directly into this course.
Description: Jazz Theory II is classroom instruction designed to familiarize students with the basics of common jazz melodic devices and solo transcription.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Music

JAZZ 5102 Jazz Arranging & Composition
Prerequisites: Students must know all twelve major scales on their principle instrument prior to enrolling in this class.
Description: Jazz Arranging and Composition introduces students to composition and arranging techniques for a jazz ensemble consisting of 5 saxophones plus rhythm section. Course topics include chord symbols, blues and jazz composing techniques, voicings for saxophones, and Finale software techniques. May not be used for degree credit with JAZZ 4102.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Music

JAZZ 5600 Jazz Combos
Prerequisites: Audition and approval of instructor.
Description: Jazz Combos are open by audition to both music majors and non-music majors and is designed to provide training in the many styles of jazz large ensemble performance. May not be used for degree credit with JAZZ 4600. Previously offered as JAZZ 5601. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

JAZZ 5610 Jazz Orchestra
Prerequisites: Audition and approval of instructor.
Description: Jazz Orchestra is open by audition to both music majors and non-music majors and is designed to provide training in the many styles of jazz large ensemble performance. May not be used for degree credit with JAZZ 3610. Previously offered as JAZZ 5611. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Graduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

JAZZ 5620 Jazz Ensemble
Prerequisites: Audition and approval of instructor.
Description: Jazz Ensemble is open by audition to both music majors and non-music majors and is designed to provide training in the many styles of jazz large ensemble performance. May not be used for degree credit with JAZZ 3620. Previously offered as JAZZ 5621. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Graduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

Korean (KRN)

KRN 1713 Elementary Korean I (F)
Description: Pronunciation, conversation, grammar, and reading. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

KRN 1813 Elementary Korean II (F)
Prerequisites: KRN 1713 or equivalent proficiency.
Description: Reading, the writing system, culture, grammar, conversation. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

KRN 2713 Intermediate Korean I (F)
Prerequisites: KRN 1813 or equivalent proficiency.
Description: Reading, the writing system, culture, grammar, conversation. A continuation or KRN 1813. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

KRN 2813 Intermediate Korean II
Prerequisites: KRN 2713 or equivalent proficiency.
Description: Oral and written practice of modern Korean. A continuation of KRN 2713. Not for native speakers per University Academic Regulation 4.9.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

KRN 3723 Advanced Korean Grammar and Conversation I
Prerequisites: KRN 2813 or Equivalent Proficiency.
Description: This course aims to enable students to communicate effectively in the Korean language in a variety of contexts and situations. They will be able to participate in both informal and formal conversations relating to topics, such as living in Korea, Korean food, Korean culture and famous Korean figures. In addition, they will improve their interpersonal, interpretive, and presentational communication skills and gain a better understanding of a wide range of Korean culture throughout the course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

KRN 3823 Advanced Korean Grammar and Conversation II
Prerequisites: KRN 3713 or Equivalent Proficiency.
Description: This course aims to enable students to communicate effectively in the Korean language in a variety of contexts and situations. The class sessions are conducted mostly in Korean. In this course, students will further develop their communication skills in the four language domains (speaking, listening, reading, and writing) as well as a deeper understanding of Korean culture and society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

Landscape Architecture (LA)

LA 1013 Introduction to Landscape Architecture
Description: An overview of the field of landscape architecture with an emphasis on the application of artistic and scientific principles of design, planning and management of natural and built environments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 1213 Visual Communication I for Landscape Architecture
Description: The practice and application of hand graphics, professional drafting, and freehand sketching skills to explore, communicate, and represent natural, designed, and built landscapes. Previously offered as LA 2002 and LA 2213.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 1223 Visual Communication II for Landscape Architecture
Description: The practice and application of digital visualization in the landscape architectural design process. Introduction to computer applications used in the industry for conceptualizing, drafting, modeling, and graphic communications. Previously offered as LA 3002 and LA 2223.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

LA 1323 Computer-Aided Design for Landscape Architecture
Description: Principles and applications of computer-aided design (AutoCAD) in landscape architecture. Visual communication techniques related to technical and construction drawings. Introduction to portfolio design. Previously offered as LA 1122 and LA 2323.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

LA 1525 Studio 1: Principles and Theory of Design
Prerequisites: Concurrent enrollment in LA 1223.
Description: Introduction to basic elements, principles, and theory of design. Exploration of design process, both 2D and 3D form, spatial organization, and temporal nature of landscape. Applied projects in small scale landscape design. Previously offered as LA 3314, LA 3315, and LA 3773.
Credit hours: 5
Contact hours: Lecture: 2 Lab: 9 Contact: 11
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

LA 2413 Ecological Landscape Design
Description: Introduction to principles of ecological landscape design, natural systems, and landscape performance as applied in contemporary landscape architecture. Includes the natural, cultural, and aesthetic components involved with analyzing existing space for design and planning purposes. Exposure to historical and contemporary individuals that have inspired ecological landscape design and planning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

LA 2513 Native American Symbolism in Landscape Design (D)
Description: Study of cultural diversity through Native American symbolism and application of these symbols as design elements relating to functional and aesthetic qualities in landscape design.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
General Education and other Course Attributes: Diversity

LA 2515 Studio 2: Site Design
Prerequisites: LA 1223, LA 1525, and concurrent enrollment in LA 1213.
Description: Design process, site inventory and analysis as it relates to physical and social site design. Place making, experiential, behavioral, and environmental considerations among several issues to be examined. Applied projects will focus on residential design, site design and design development. Previously offered as LA 3324, LA 3325, and LA 4013.
Credit hours: 5
Contact hours: Lecture: 2 Lab: 9 Contact: 11
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 2523 Garden Design in Harmony with Local Ecology
Description: History, theory, and practice of creating gardens in harmony with local ecology to express aesthetic and cultural values of individuals and societies. Environmental aspects of place related to design form and expression.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

LA 2525 Studio 3: Recreation and Open Space Design
Prerequisites: LA 2515.
Description: Recreation and play, the interface of nature, human-kind and land ethic. Applied projects will address structured and nature play, active and passive parks, open space planning, and natural landscapes. Previously offered as LA 4023, LA 4414 and LA 4415.
Credit hours: 5
Contact hours: Lecture: 2 Lab: 9 Contact: 11
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

LA 3010 Internship in Landscape Architecture
Prerequisites: 45 credit hours and consent of internship chairperson.
Description: Supervised work experience with approved public or private employers in landscape architecture or related fields. May not be substituted for other required courses. Graded on a pass-fail basis. Offered for variable credit, 1-7 credit hours, maximum of 10 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 3020 Long-Term Internship in Landscape Architecture
Prerequisites: LA 3515 and approval of academic advisor and faculty internship coordinator.
Description: Supervised continuous work experience for 6 months or more with approved public or private employers in landscape architecture or related fields. Presentation required following the internship experience.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 3112 Landscape Architecture National Survey
Prerequisites: LA 3315.
Description: Examination and exposure to the state of landscape architecture practice and issues critical to profession. Includes 4- to 6-day out-of-state field trip component to the city hosting the American Society of Landscape Architects National Convention, observation of nationally recognized built works, participation in the convention and networking with professionals from across the country. Includes pre-trip research and post-trip documentation. Required for third-year landscape architecture students.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

LA 3515 Studio 4: Landscape Planting Design
Prerequisites: LA 2525, HORT 2613.
Description: Introduction and application of the techniques, methods, and concepts for exploring, expressing, and representing landscape planting designs. Medium to large scale landscape architectural planting design projects and the preparation of concept sketches, illustrative plans, construction documents, and specifications. Emphasis on plant selection and arrangement criteria based on ecology and horticultural practices, the principles of design, and the fundamentals of bioregionalism. Previously offered as LA 4033 and LA 4034.
Credit hours: 5
Contact hours: Lecture: 2 Lab: 9 Contact: 11
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 3525 Studio 5: Sustainable Construction and Design
Prerequisites: LA 3515 and LA 3884 or LA 4894.
Description: Explore sustainable issues to improve the design and implementation of natural, cultural, and built environments in the practice of landscape architecture. Applied projects will focus on and apply sustainable construction and design solutions at various scales while considering impacts on human beings and the environments. Previously offered as LA 3893 and LA 3894.
Credit hours: 5
Contact hours: Lecture: 2 Lab: 9 Contact: 11
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

LA 3673 History and Theory of Landscape Architecture (H)
Description: Introduction to the history of the built environment from ancient to contemporary time that has created the styles of historical significance in landscape architecture. Examination of the social, philosophical, cultural, economic, political, and environmental conditions of the built environment within design theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
General Education and other Course Attributes: Human Heritage & Cultures
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 3683 Professional Practice & Office Procedure
Description: Ethics, office practice and procedure. Contract documents and specifications relating to landscape architecture. Previously offered as LA 3682.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

LA 3884 Landscape Construction: Site Grading
Prerequisites: LA 1323.
Description: Review mechanical drafting and lettering techniques, understanding contours, principles of stormwater runoff, site grading and earthwork calculations, methods of managing stormwater runoff, erosion control, introduction to paving and drainage construction materials, specifications, cost estimating. Computer applications and hand graphics used for projects. Previously offered as LA 3883.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 4010 Special Topics in Landscape Architecture
Description: New and emerging areas of study in Landscape Architecture. Offered for variable credit, 1-4 credit hours, maximum of 9 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 4053 International Experience in Landscape Architecture - Asia (G)
Prerequisites: Consent of appropriate faculty member.
Description: Participation in a formal or informal educational experience related with landscape architecture in Asia.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
General Education and other Course Attributes: International Dimension

LA 4063 International Experience in Landscape Architecture - Peru (G)
Prerequisites: Consent of appropriate faculty member.
Description: Participation in a formal or informal educational experience related with landscape architecture in Peru.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
General Education and other Course Attributes: International Dimension

LA 4112 Landscape Architecture Career Survey
Prerequisites: LA 2525.
Description: Examination and exposure to built works and landscape architecture professional offices with diverse practices and market niches. Targeted networking and career exploration opportunities for students. Includes a 4- to 6-day out-of-state regional field trip component, pre-trip research, and post-trip documentation. Required for fourth-year landscape architecture students.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch

LA 4423 Planning and Design for Sustainable Landscapes
Prerequisites: For LA students, LA 3894. For all other students, NREM 3013 or NREM 2013 and SOIL 2124.
Description: Explore the origins of sustainability as a basis for understanding how to improve the planning and design of natural and cultural environments in the practice of landscape architecture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch

LA 4433 Land Use and City Planning
Description: Land use and city planning within the framework of a municipality's comprehensive plan, zoning, and subdivision regulations that affect the development of city form. Origins of land use form as a basis for understanding how to improve the future of urban and suburban form through the practice of landscape architecture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 4453 Principles of Landscape Analysis for Site Design
Prerequisites: LA 3515.
Description: Analysis of landscapes for design and management decision-making using real-world projects integrating computer-aided design (CAD) and geographic information systems (GIS), aerial photography, and global positioning system (GPS) technologies. Applications will be related to landscape architecture and site design.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 4515 Studio 6: Urban Design
Prerequisites: LA 3515.
Description: Contemporary urban issues affecting the design process, site master planning, and multi-disciplinary problem solving. Applied project will address influences on urban design, from regional influences to user behavior. Previously offered as LA 4514 and LA 5024.
Credit hours: 5
Contact hours: Lecture: 2 Lab: 9 Contact: 11
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 4525 Studio 7: Community Development and Neighborhood Design
Prerequisites: LA 3525 or LA 4515.
Description: Exposure to contemporary issues of community development over a range of scales including landscape planning, schematic design, and design development. Projects will address issues at multiple forms and densities. Exploration of professional office dynamics, environments, and community involvement.
Credit hours: 5
Contact hours: Lecture: 2 Lab: 9 Contact: 11
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

LA 4573 Recreation Planning
Prerequisites: Consent of instructor.
Description: Theory and methods for small and large scale area planning with emphasis on natural and cultural resources.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch

LA 4894 Landscape Construction: Materials and Methods
Prerequisites: LA 1323 and LA 3884.
Description: A capstone course using design techniques, computer skills, construction materials, methods and applications for the landscape industry. Detailed computerized construction drawings of pavement, fences, walls, wood structures, and water features. Comprehensive construction documents using computer drafting, design and calculation applications. Previously offered as LA 4893.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 4990 Landscape Architecture Special Problems
Prerequisites: Consent of appropriate faculty member.
Description: Landscape architectural related problems. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

LA 5110 Advanced Special Problems
Prerequisites: Consent of appropriate faculty member.
Description: Specific landscape architectural problems. Offered for variable credit, 1-12 credit hours, maximum of 20 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate, Undergraduate
Schedule types: Independent Study
Department/School: Hort & Landscape Arch
Additional Fees: HORT/LA Facil, Equip, Lab fee of $12 per credit hour applies.

Language, Literacy and Culture (LLCE)

LLCE 2003 American Stories: Diverse Peoples in YA Literature (DH)
Description: Explores young adult literature representations of diverse peoples in America. Students examine historical and contemporary representations of diverse social and cultural groups through a variety of critical, analytical lenses such as literary or formal analysis, anti-bias antiracist/critical literacy, disability studies lens, genetic/historical criticism, and queer reading of young adult literature. Requires reading, discussion, and written analysis of young adult literature.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

LLCE 6060 Special Topics in Language, Literacy & Culture Education
Description: Seminar on special topics in language, literacy, and culture education. Course topics will differ depending on current interests and issues in the field.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6063 Theoretical Models and Processes of Literacies Education
Description: Doctoral level course that focuses on a broad range of theoretical models of P-12 literacies practices, with an emphasis on reading education. Both historical perspectives and contemporary theories are explored.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6083 Seminar in Writing Pedagogy
Prerequisites: Graduate standing with Graduate College.
Description: Seminal works in theory and research related to the teaching of writing in K-16 settings are examined. Students will examine the scholarship on genre theories, writing process theory, and writing pedagogy, considering the practical classroom implications and applications for this work. This course relies on reading, discussion, synthesis of key concepts, and individual inquiry as central learning processes. Previously offered as CIED 6083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6113 Scholarly Writing in Literacies & Language Arts
Description: Doctoral level course that focuses on developing scholarly writing skills for publication in the disciplines of P-12 literacies and language arts education. Scholarly text structures, academic writing strategies, disciplinary publication venues and expectations are explored.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6183 Colloquium in Cultural Studies
Prerequisites: Graduate standing. For those in education, recommend SCFD 6113 and SCFD 6983.
Description: The study of culture and the problematics of culture beyond national boundaries and disciplinary divisions through interdisciplinary and post-disciplinary lenses in, but not limited to, the context of language and multiliteracies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6213 Observing and Responding to Young Readers in Reading Recovery
Description: Understanding the complex role of teacher leaders as they teach children and participate in the training of Reading Recovery teachers in the field. Develop role as a facilitator and problem solver in the implementation of Reading Recovery within school systems. Interaction with other teacher leaders and the University trainer at multiple training sites to broaden and deepen understanding of how to support and facilitate teachers' growth and development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6223 Theoretical Foundations in Early Literacy and Reading Recovery
Description: Introduction to underlying theories that contribute to early reading and writing. Critical understandings include the role of systematic observation of oral and written language and the relationship of oral language acquisition to early school literacy. A history of research in literacy processes that contribute to the foundations of Reading Recovery will be explored. (The course is the first course in the two-semester theory requirement for Reading Recovery teacher-leaders and trainers in training.)
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6233 Reading Recovery Teacher Leadership
Description: Participants in this course will construct an understanding of the complex role of teacher leaders as they teach children and participate in the training of Reading Recovery teachers in the field. They will also acquire skills in fulfilling their role as a facilitator and problem solver in the implementation of Reading Recovery within school systems. They will interact with other teacher leaders and the University trainer at multiple training sites to broaden and deepen their understanding of how to support and facilitate teachers' growth and development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6243 Early Literacy Intervention in Reading Recovery
Description: This course focuses on the procedures for working with emerging at-risk readers and writers. The course content is based on strategies children need to be independent readers & writers. Course content and presentation reflect a highly-theoretical teacher decision making model based on actual observation of teacher-child interactions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6253 Advanced Theoretical Foundations of Early Literacy and Reading Recovery
Description: A course for Reading Recovery teacher leaders-in-training focusing on the underlying theories of early literacy acquisition (including processes related to reading, writing, and oral language) and the underlying theories of prevention of reading difficulties through early intervention.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6263 Advanced Reading Recovery Teacher Leadership
Description: This course involves the application of expertise in early literacy and early intervention leadership. Teacher leaders-in-training will participate in the implementation of early literacy teacher courses and early intervention in schools and systems, teach adult learners, and learn to use data to refine and evaluate implementation. Field work is required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

LLCE 6680 Research Collaboratives in Literacies & Language Arts Education
Prerequisites: SCFD 6113
Description: Doctoral students engage in faculty-led collaborative research teams to explore theoretical foundations and methodologies of P-12 literacies and language arts education. Students develop research skills, practices, and publications and are expected to carry out projects to completion/publication, which may involve commitment beyond the course. Attendance at weekly or biweekly team meetings is expected as well as independent and collaborative research time. Offered for variable credit, 1-3 hours, maximum of 6 hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

Languages and Literatures (LL)

LL 1000 Special Studies in Languages and Literatures
Description: Special studies in areas not regularly offered; basic level. Not for native speakers per University Academic Regulation 4.9. Previously offered as FLL 1000. Offered for variable credit, 1-10 credit hours, maximum of 10 credit hours.
Credit hours: 1-10
Contact hours: Lecture: 1-10 Contact: 1-10
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

LL 1113 The World Through Film (GH)
Description: This course will give students a glimpse of the world, of different peoples and cultures, through movies. It would like to awake in them an appreciation for the diversity of the world we live in and expose them to the basics of various languages spoken around the world. Instructors from the different languages taught in the Department of Literatures and Languages will visit the class and expose the students to some elements of the languages they teach. Previously offered as FLL 1113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

LL 1123 The Origins of Modern Ukraine: Culture and State (GH)
Description: This course traces the multicultural origins of the modern Ukrainian state from the beginnings of Kyiv to the present day. Topics include Vikings, Cossacks, the Ukrainian nationalist idea, Soviet domination, and the post-1991 rise of independent Ukraine. It examines the struggles of the Ukrainian people to create a modern nation with challenges, including Russian political and economic interference, invasion, and war. Readings are selected from contemporary Ukrainian authors. Taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

LL 1223 European Folklore and Fairy Tales (H)
Description: This course examines the development of the fairy tale and folk narrative in Europe from antiquity to the 21st century. By the end of the semester, you will be familiar with the cultural history of fairy- and folk-tales, and their influence on popular culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 1233 Spanish in the United States (D)
Description: This course provides an introduction to the Spanish language and Spanish-speaking communities across the United States, with a special emphasis on Spanish-speaking communities in Oklahoma. Students will explore key topics such as the history of Spanish in the U.S., differences in how Spanish is spoken in various regions, bilingualism, media representation, and language policy. Students will critically engage with these topics through weekly readings, discussions, and assignments. Course taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Diversity

LL 1253 Bread & Circuses: Sport and Festivals in Greece and Rome (H)
Description: From the Olympics to Gladiator, from college sports to the WWE, our culture contains echoes of the ancient world. This course explores the range and role of sport and festivals in Greece and Rome, their origins in the ancient Mediterranean, and their relevance to our modern world. While learning about these practices, displays, and competitions, students will also learn about their importance to the politics, religions, and daily life of these ancient cultures. Taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 1313 Tsar Wars: Introducing Russia (H)
Description: Chaos. Murder. Mayhem. Wars of Aggression. Why does Russia act the way it does? Why does it destroy so many of its own people? Why are windows and tea so dangerous? Through an examination of brief Russian texts in translation, this course introduces key Russian cultural and political concepts that explain how Russia sees its place and role in the world today and why it acts the way it does. Taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 1403 The Languages of Oklahoma (H)
Description: From Anadarko to Prague, Oklahoma maps show the history of its languages. This course explores that history from Indian nations' tribal languages to those brought by migrations from Europe and Asia to American Sign Language. Students will be introduced to writing systems, sounds, and vocabularies of Oklahoma languages. Topics include ethnic groups who brought languages to Oklahoma, the history of language policy and education in the state, and Oklahoma languages in media. Taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 1603 Love and Ethics in the Middle Ages (H)
Description: Why did medieval writers think love could save your soul—or ruin your life? This course dives into the world of troubadours, poets, and storytellers who shaped Europe's first great love literature and explores how ideas about romance, desire, and power shaped medieval culture and still influence us today. Taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 1703 From Dragons to Dumplings: China's Cultural DNA (H)
Description: This course explores the foundations of Chinese culture with traditional and contemporary examples. Students will analyze the cultural elements that are widely considered to constitute "Chinese culture" historically and today, including historical, literary, and artistic traditions, philosophical and religious ideas, political institutions, the common writing system, and food. The influence and presence of Chinese cultural expressions in the U.S. are also considered. Taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 2000 Special Studies in Languages and Literature: Intermediate
Prerequisites: 6 hours or equivalent in target language (applies only to language course).
Description: Special study in areas other than those offered in regular program; intermediate level. Not for native speakers per University Academic Regulation 4.9. Previously offered as FLL 2000. Offered for variable credit, 1-5 credit hours, maximum of 10 credit hours.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

LL 2103 Masterworks of Western Culture: Ancient and Medieval
Description: Ideas and values of Western culture as revealed through literary, artistic, historical, and philosophical contexts from Greek, Roman, and Medieval periods. Previously offered as FLL 2103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

LL 2203 Masterworks of Western Culture: Modern
Description: Ideas and values of Western culture as revealed through literary, artistic, historical, and philosophical contexts from the Renaissance to the Modern period. Previously offered as FLL 2203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

LL 2443 Languages of the World
Description: A comprehensive survey of world languages. The essential structural and historical organization of languages. The process of languages as a basic human function. Same course as ENGL 2443. Previously offered as FLL 2443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

LL 2503 French Culinary Staples (G)
Description: Study of the production, taste, and cultural importance of cheeses, wines, and breads in France. Analysis of marketing techniques related to these products and cultural comparisons of food consumption habits between France and the US. Course is taught in English. Previously offered as FLL 2503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: International Dimension

LL 2603 French Cultural Exception (H)
Description: The purpose of this course is to give students a critical overview of modern French philosophy in order to help them conceptualize and reassess the importance of egocentrism in Western culture. Previously offered as FLL 2603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 2613 Race and Culture in Latin America (GH)
Description: A comprehensive survey of the cultural, aesthetic, and political depictions of race in Latin America, from colonial times to the present. Course taught in English. No prerequisite. Previously offered as SPAN 3613 and LL 3613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

LL 2623 Don Quixote in English (H)
Description: This course is devoted to Cervantes' novel, Don Quixote, in English translation. Course taught in English. No prerequisite. Previously offered as SPAN 3623 and LL 3623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 2723 American Deaf Culture (D)
Description: This course provides an analysis of the development and historical overview of Deaf culture in the United States. Topics include education of the D/deaf; Deaf Films, theaters, arts, and clubs; preservation of American Sign Language; technology and services in the Deaf community. The student's acculturation process is facilitated by active participation in the Oklahoma Deaf community. This course will be voiced/taught in English. Same course as ASL 2723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Diversity

LL 3003 The Soviet Union: History, Society and Culture (GS)
Description: A comprehensive view of the Soviet Union, stressing those issues in the political, economic, technological, geographical, and cultural situation. Accessible to beginning undergraduates. Same course as HIST 3003 & POLS 3003. Previously offered as RUSS 3003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: International Dimension, Society & Human Behavior

LL 3053 Introduction to Central Asian Studies (GS)
Description: A comprehensive view of newly-emerged Central Asian states, examining the history, politics, economics, geography, and culture of Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan as reflected in their thoughts, religion, literature, and architecture, in the past, and the strategic importance of their natural wealth for the present and future. Same course as GEOG 3053, GLST 3053, HIST 3053, and POLS 3053. Previously offered as RUSS 3053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: International Dimension, Society & Human Behavior

LL 3103 Hispanic Literature in Translation (H)
Description: Readings of significant works from Spanish and Spanish-American literatures in English translation. Does not apply to major or minor in Spanish. Previously offered as FLL 3103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 3113 French Literature in Translation (H)
Description: Readings of significant works from French literature in English translation. Does not apply to a major or minor in French. Previously offered as FLL 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 3123 Classical Mythology (H)
Description: Myths, their cultural context, and their place in world literature. Course taught in English. No prerequisite. Same course as ENGL 3123. Previously offered as LATN 3123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 3133 Russia as Empire (H)
Description: A study of Russian cultural history to explain contemporary Russian national identity and Russia's actions in the world today. Students will read Russian literature, discuss Russian culture, politics, and history, and examine current events to better understand Russia. Primary source material includes epic tales, literary works from Pushkin, Lermontov, Turgenev, Gogol, Chekhov, Blok, Akhmatova, and Yevtushenko, and political treatises by Ivan the Terrible and Mikhail Khodorkovsky, with secondary source material also provided. Taught in English. Previously offered as RUSS 3123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 3143 Chinese Literature in Translation
Description: Development of student competence in reading a wide variety of materials by contemporary Chinese writers. Previously offered as CHIN 4133 and CHIN 3813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

LL 3163 Literatures of the Ancient World (H)
Description: Readings and topics in the cultures and literatures of the ancient world. Same course as ENGL 3163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 3223 Love and Hate in Greece and Rome (H)
Description: A study of the expression of love and hate from Archaic Greece to Imperial Rome, with a particular attention to cultural context and the theoretical work that has arisen from it. Course taught in English. Previously offered as LATN 3223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 3233 Greek Tragedy (H)
Description: This class studies a number of plays by the three great Greek tragedians: Aeschylus, Sophocles, and Euripides. The genre of tragedy was born in 5th century Athens and is grounded in a very specific context of civic life, politics, and religion. The plays, almost all set in the realm of myth and legend, also deal with important questions of ethics, war, psychology, tensions between the individual, family, and state, and what it is to be human.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 3333 The Russian Spy in Fact and Fiction (GH)
Description: This course examines the spy in cultural productions of Russia and the West. Topics include stereotyping in popular culture, the relationship between fact, fiction, and political imagination, Western and Russian views of each other, the Cold War, security, hybrid war, and grey-zone activities. Readings from American, British, and Russian sources include classic Cold War literature, contemporary press, history, and a graphic novel. Taught in English. Previously offered as RUSS 3333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

LL 3500 Specialized Study in a Modern Language
Prerequisites: Consent of instructor.
Description: Instruction and/or tutorial work in a modern foreign language other than those offered in a major program. Previously offered as FLL 3500. Offered for variable credit, 1-20 credit hours, maximum of 20 credit hours.
Credit hours: 1-20
Contact hours: Contact: 1-20 Other: 1-20
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

LL 3633 Language and Migration (GS)
Description: This course examines the relationship between language and human mobility in the context of globalization. We will examine linguistic diversity as a result of forced and voluntary migration. Course taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: International Dimension, Society & Human Behavior

LL 3643 Judaism, Christianity and Islam in Medieval Iberia (H)
Description: The Iberian Peninsula of the Middle Ages was characterized by varying degrees of coexistence and cooperation among Jews, Christians, and Muslims. This course will focus on the contributions to literature, art, science, government, architecture, philosophy, etc. of members of these three faith traditions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 3663 Surveillance, Data, and Hacking in German Film and Television (H)
Description: We will survey German surveillance in German film and television, viewing and discussing films by famous German directors as well as art-house cinematographers. Taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 3713 Chinese Culture (G)
Description: Historical, cultural, social, economic, and political aspects of China. Previously offered as CHIN 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: International Dimension

LL 4000 Specialized Studies in Languages and Literatures
Prerequisites: Junior standing or consent of instructor.
Description: Individual guided study, tutorial or seminar on specially selected topics in a foreign language or literature. Previously offered as FLL 4000. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

LL 4113 German Literature and Culture in Translation (G)
Description: Influential authors, works, and literacy and artistic movements in German-speaking lands.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: International Dimension

LL 4123 Fairy Tales: The Brothers Grimm, Disney, and Beyond (H)
Description: An introduction to European fairy tales, with an emphasis on the Brothers Grimm and their cultural influence. Taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 4133 Vampires, Monsters, and Other Horrors: German Film's Haunted Pasts (H)
Description: A survey of German film, with emphasis on the ways films reflect specific cultural, and political moments in German and Austrian history. Taught in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 4443 Greek Literature in Translation (H)
Description: Readings of significant works from ancient Greek literature and philosophy in English translation, from Homer through Aristotle. Readings and classes conducted in English. Previously offered as GREK 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 4453 Latin Literature in Translation (H)
Description: Readings of significant works from Latin literature in English translation, from the late Republic through the early Christian era. Readings and classes conducted in English. Previously offered as LATN 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 4463 Russian Literature in Translation I (H)
Description: Russian literature from its beginning to mid-19th century: Pushkin, Lermontov, Goncharov, Gogol, Turgenev, and Dostoevsky. Readings in English. Classes conducted in English. Previously offered as RUSS 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures
General Education and other Course Attributes: Human Heritage & Cultures

LL 4993 Senior Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a senior faculty member with second faculty reader, both of whom will be present at an oral defense of the thesis. Required for graduation with departmental honors in any foreign language major. Previously offered as FLL 4993.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures
General Education and other Course Attributes: Honors Credit

LL 5210 Graduate Studies in Languages
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Languages and Literatures

Latin (LATN)

LATN 1713 Elementary Latin I (F)
Description: The rudiments of beginning Latin: grammar, vocabulary and elementary readings. Previously offered as LATN 1113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

LATN 1813 Elementary Latin II (F)
Prerequisites: LATN 1713 or equivalent proficiency.
Description: Continuation of LATN 1713. Grammar, vocabulary and readings. Previously offered as LATN 1223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

LATN 2713 Elementary Latin III (F)
Prerequisites: LATN 1813 or equivalent proficiency.
Description: A continuation of LATN 1813. Grammar and readings of Latin authors. Previously offered as LATN 2113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

LATN 2813 Intermediate Readings
Prerequisites: LATN 2713 or equivalent proficiency.
Description: Readings from Virgil's Aeneid. Previously offered as LATN 2213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

LATN 3330 Advanced Readings in Latin
Prerequisites: LATN 2813 or equivalent proficiency.
Description: Prose authors, poetry, and medieval Latin. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

Legal Studies in Business (LSB)

LSB 1113 Law in Society
Description: Forms and types of law and their evolution, including antitrust, ecology, consumerism and civil rights. Political, social and economic forces affecting legal developments. Legal needs of society and the probable future direction of the law. Course previously offered as BUSL 1113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 3010 Special Topics in Legal Studies in Business
Prerequisites: LSB 3213, prior consent of instructor.
Description: Analysis of a contemporary topic in business law. Changing social issues and trends in legal studies in business. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Management

LSB 3011 Name, Image, and Likeness and the Law
Description: In this course, students will learn the primary legal principles surrounding the right of publicity, which in the context of college athletes is commonly referred to as name, image, and likeness rights. Students will learn the legal theory that underpins the current debate over granting name, image, and likeness rights to collegiate athletes. This course covers several different legal concepts, including the separation of powers, contracts, agency law, and intellectual property law. After completing this course, students will understand the rules governing the licensing of name, image, and likeness rights for college athletes. Students will also gain experience in negotiating and drafting mock contracts.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 3213 Legal and Regulatory Environment of Business
Prerequisites: Junior standing.
Description: General concepts regarding the nature of the legal system, ethical issues in business decision making, dispute resolution processes, basic constitutional limitations on the power of government to regulate business activity, the nature of government regulation, fundamental principles of tort and contract law. Course previously offered as BUSL 3213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 4013 Law and Social Media
Prerequisites: LSB 3213.
Description: This course introduces the fundamentals of social media law. Legal topics include: marketing, intellectual property, employment, privacy, free speech and fundraising. Methods to address the risks of these legal issues will be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 4113 White Collar Criminal
Prerequisites: LSB 3213.
Description: This course explores white-collar crime including illegal, unethical and deviant activities of organizations and individuals. The course examines causes of the behavior as well as its impact on business stakeholders.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 4323 Law of Commercial Transactions and Debtor-Creditor Relationships
Prerequisites: LSB 3213.
Description: Concentrated study of law relating to certain commercial transactions and debtor/creditor relationships. Includes law of sales, negotiable instruments, secured transactions, suretyship and bankruptcy. Previously offered as LSB 3323 and BUSL 3323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 4403 Law and Entrepreneurship
Prerequisites: ECON 3213 or permission of instructor.
Description: Explores how to recognize and ethically manage legal risks within an emerging enterprise in order to optimize opportunities. Topics include: evaluating appropriate business organizations; understanding alternatives for obtaining capital; using employees to help achieve organizational goals; protecting intellectual property; and complying with the regulatory environment when advertising and marketing a product or service.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 4413 Law of Business Organizations
Prerequisites: LSB 3213.
Description: General principles of law relating to the formation, operation and termination of various forms of business organizations. Includes a study of the law of agency, partnerships and corporations. Course previously offered as BUSL 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 4423 Employment Law (D)
Prerequisites: LSB 3213 or equivalent.
Description: Legal foundations of employment in the United States. Contemporary topics relating to the employment environment such as state legislative and judicial limitations on employment at will doctrine, federal legislation relating to equal employment opportunity and affirmative action, fair labor standards, safety in the work place and state workers compensation laws. Previously offered as LSB 3423 and BUSL 3423. No degree credit for students with credit in LSB 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management
General Education and other Course Attributes: Diversity

LSB 4513 White Collar Criminal Law
Description: This course is a comprehensive examination of white-collar crime - the illegal, unethical, or deviant activities of respectable institutions and individuals. The class will emphasize how courts, juries and the public perceive and react to these crimes. The causes and impact on the business community and society will be examined. Students will study contemporary and notorious cases. Students will brief cases in handouts studying the major sources of law in the prosecution of white collar criminal cases by the federal government. Traditional and active learning methods will be used.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 4523 Law of Real Property
Prerequisites: LSB 3213 or equivalent.
Description: Nature of real property and of the legal transactions relating thereto. Topics may include deeds and conveyancing, landlord-tenant relationships, mortgages, easements, oil and gas interests, types of estates, joint ownership, and legal descriptions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

LSB 4633 Legal Aspects of International Business Transactions (G)
Prerequisites: LSB 3213 or equivalent.
Description: Legal aspects of operating a business entity engaged in international commerce. Topics may include: foreign business organizations, U.S. taxation of foreign investors, common clauses in transnational contracts, problems of technology transfer on the international market, anti-trust aspects of international business, and jurisdictional problems in resolving disputes. Course previously offered as BUSL 4633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management
General Education and other Course Attributes: International Dimension

LSB 5010 Research and Independent Studies
Description: A workshop arrangement or supervised independent study. Offered for variable credit, 1-3 credit hours, maximum of 10 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Management

LSB 5163 Legal Environment of Business
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Legal environment within which business must operate. Nature and source of law, the operation of the judicial system, the operation of administrative agencies, selected Constitutional provisions frequently involved in litigation of business problems, and selected substantive legal areas having a direct relationship with business operation and decision-making.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

LSB 5203 Foundations of Issue and Conflict Management
Description: Provides professionals from all fields with the skills necessary to handle conflicts, solve disputes, influence decisions and develop positive interpersonal relationships. It provides an overview of the alternative dispute resolution processes by utilizing readings, research, discussion and role-playing exercises.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

LSB 5213 Mediation and Facilitation: Theories and Practice
Prerequisites: ECON 5203.
Description: This course examines the theories, skills, and boundaries of the mediation and facilitation processes, and analyzes the role of the third party neutral in the intervention and resolution conflicts. Ethical, practical and legal constraints are also addressed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

LSB 5233 Introduction to Arbitration and Litigation
Prerequisites: LSB 5203.
Description: This course examines the elements and process of arbitration, situations, in which arbitration skills are required, including construction, securities, civil conflicts, labor disputes and commercial contracts. Topics include comparisons to litigation, the role of judicial review and the enforcement of arbitration awards.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

LSB 5290 Seminar in Negotiation and Alternative Dispute Resolution
Prerequisites: Consent of instructor.
Description: Individual investigations in the areas of issue and conflict management under the direct supervision of a faculty member. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Management

LSB 5423 Employment Law
Prerequisites: LSB 3213 or equivalent or permission of instructor.
Description: Legal foundations of employment in the United States. Contemporary topics relating to the employment environment such as state legislative and judicial limitations on employment at will doctrine, federal legislation relating to equal employment opportunity and affirmative action, fair labor standards, collective bargaining, and safety in the work place. Students may not take both LSB 4423 and LSB 5423 for degree credit.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

Leisure (LEIS)

LEIS 1232 Beginning Golf
Description: Theory and practice of basic skills, rules, terminology and etiquette.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity

LEIS 1242 Beginning Tennis and Racquetball
Description: Theory and practice of tennis and racquetball; basic skills, rules, terminology, and game strategy for singles and doubles play. No credit for students with credit in LEIS 1252.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity

LEIS 1252 Beginning Tennis
Description: Theory and practice of basic skills, rules, terminology and game strategy for singles and doubles play. No credit for students with credit in LEIS 1242.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity

LEIS 1322 Bowling
Description: Theory and practice of approaches, deliveries, releases and mechanical principles involved in aiming and follow through.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity

LEIS 1342 Physical Fitness
Description: Theory and practice of aerobic and weight training activities with learning experiences designed to promote physical fitness.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity

LEIS 1352 Weight Training
Description: Improvement of muscular strength and endurance in the major muscle groups of the body through progressive resistive exercise. Fundamental anatomy, physiology, mechanical principles, methods and techniques as applied to weight training programs.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity

LEIS 1362 Self Defense
Description: Theory and practice of self defense; scientific principles of gravity and body control over opposing forces, and principles of contest judo.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity

LEIS 2112 Rock Climbing
Description: Theory and practice in the basics of technical rock climbing, bouldering and spelunking.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity
Additional Fees: HTM 4723 Consumable Mat fee of $30 and LEIS 2112 Field Trip fee of $30 apply.

LEIS 2122 Backpacking and Hiking
Description: Theory and practice of outdoor skills and leadership techniques for executing and evaluating a wilderness activity.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity

LEIS 2322 Recreational Dance
Description: Theory and practice of traditional social dances and a variety of "free style" dance forms.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Leisure Performance Activity

LEIS 6043 Ethical Issues in Health, Leisure, and Human Performance
Prerequisites: Admission to the Graduate College.
Description: A survey of ethical issues with specific emphasis on health, leisure, and human performance in higher education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

Library Science (LBSC)

LBSC 1011 Library and Internet Information Competencies
Description: Introduction to the organization, retrieval and evaluation of information found in research libraries and on the Internet. Development of information-seeking competencies using both print resources and electronic databases.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

LBSC 5013 Library Media Center in the Schools
Description: Effective utilization of the centralized school media center for the teaching-learning process. Course previously offered as LBSC 3050.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

LBSC 5113 Selection and Organization of Informational and Educational Resources
Description: Selection, evaluation, organization and use of informational and educational resources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

LBSC 5413 Organization of Information
Description: Basic principles of the organization of information in schools. Information and knowledge organization techniques that exist or are emerging and focuses on standards and tools that are used in educational environments. Course previously offered as LBSC 4414.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

LBSC 5613 Library Networks and Databases
Description: Introduction to the organization, retrieval and evaluation of information found in research libraries and on the Internet. Development of information-seeking competencies using both print resources and electronic databases.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

LBSC 5823 Administration of School Library Media and Technology Programs
Description: Vision of, planning, organizing, policy making, staffing, budgeting, decision-making and evaluating a standards-based school library media or school technology program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

Management (MGMT)

MGMT 3011 Business, Government and Society
Description: Students will be exposed to topics in business sustainability including ethics and corporate responsibility; social environment and stakeholders; natural environment and externalities; and the regulatory environment.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 3013 Fundamentals of Management (S)
Description: Survey of management principles and techniques. Examines a variety of issues at individual, team and organizational levels and challenges faced by today's managers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management
General Education and other Course Attributes: Society & Human Behavior

MGMT 3021 Practical Business Skills: Success Strategies
Description: This course introduces students to practical business skills by developing behaviors and exploring routines that correlate with career success. Specific attention to risk taking is explored.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 3031 Practical Business Skills: Personal Decision Making
Description: This course teaches practical business skills by introducing students to improved decision making. Specifically, students will explore life decisions, career choices and improved personal budgeting and management skills.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 3041 Practical Business Skills: Critical Thinking Skills
Description: This course introduces students to practical business skills including critical thinking, analytical skills, reason and the art of self-reflection. Students will also learn about imagination, intellectual bravery and the thinking skills needed to succeed in a rapidly changing world.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 3123 Managing Behavior and Organizations
Prerequisites: MGMT 3013.
Description: Focuses on the complexities of human behavior in organizational settings. Performance expectations and determinants at the individual, team and organizational levels are examined. Priority enrollment is given to management majors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 3133 Developing Leadership Skills
Prerequisites: MGMT 3013.
Description: The study of personal, interpersonal and group factors relating to leadership performance. An integration of the theory and practice of leadership. May not be used for degree credit with BADM 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 3313 Human Resource Management
Prerequisites: MGMT 3013.
Description: Policies and practices used in personnel management. Focuses upon the functions of a human resource management department.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 3921 Name, Image, and Likeness: Sports Business
Description: This course will provide an overview of revenue generation in collegiate sports, focusing on the recent changes in name, image, and likeness for NCAA athletes. Topics will include history and development of amateur sports in the United States, organization and structure of the NCAA, and marketing and finances within collegiate athletics. Special attention will be given to understand name, image, and likeness challenges and opportunities in the current and future collegiate sports marketplace.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 3943 Sports Management
Prerequisites: MGMT 3013.
Description: Basic management skills necessary in the operation of sport organizations. The social, behavioral and managerial foundations of sport management, public relations, finance, economics, budgeting in the sport industry and managing a sports facility.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 3963 Social Issues in Sports Management
Description: Analysis of the external environment and its relationship to sports management will be explored. Topical social issues will be discussed and presented and students will gain insight on how sports organizations operate complex issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4011 Crucial Interactions
Description: Examines methods for increasing positive communication between you and organizational members. Crucial conversations are those conversations that we must have. Ways to increase the free-flow of dialogue to maximize benefit from a crucial conversation are discussed. No credit for students with credit in MGMT 5011.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4013 Current Topics in Management and Leadership
Prerequisites: MGMT 3013.
Description: Examination of selected topics representing the most current management and leadership theories and practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4021 Managing Professional Relationships
Description: The study of political behaviors and ways to use them effectively in order to be successful in your career. Ways to be prepared for political dynamics at work and what you can do to emerge a winner will be discussed. No credit for students with credit in MGMT 5021.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4031 Leading Organizational Change
Description: An introduction to ways of leading change in an organization to keep pace with the economy and the competition. Building an eight step process for developing, selling and implementing change initiatives. No credit for students with credit in MGMT 5031.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4033 Management of Sustainable Enterprises
Description: Students will be introduced to the social and natural environments and threats to sustainability. The course will cover the external drivers of sustainability as well as internal responses to these pressures. May not be used for degree credit with MGMT 5033. Previously offered as MGMT 3023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4041 Performance Management
Description: A study of the role of a performance management (PM) system in an organization, the basic components of a PM system (standards, measurement, judgment and action), PM methods and performance management interviews and the Balanced Scorecard. No credit for students with credit in MGMT 5041.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4051 Creating Ethical Work Places
Description: An examination of the meaning of ethics in business and human resource management, how ethical, work-related behavior can be maximized, and how ethical organizational cultures facilitate organizational effectiveness. Establishing and critiquing an ethics program and examining your own code of ethics. No credit for students with credit in MGMT 5051.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4053 Study Abroad: Contemporary Global Impacts in Management (G)
Description: A study of business in a country and region that will provide an integrated approach to the rich cultural, commercial, historical, technological, political, economic, and religious issues. The country's role as a political and economic power will be examined. Comparisons of technology, policies, and economies will be made, as well as investigating hurdles and synergies to doing business between that country and the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management
General Education and other Course Attributes: International Dimension

MGMT 4061 Managing Confrontations
Description: Crucial confrontations directly address gaps between expectations and performance with a model that ensures individual and team effectiveness. Learn to hold people accountable, master face-to-face performance discussions, motivate without using power, enable without taking over, and move to action. It will improve the quality of your life and of your organization. No credit for students with credit in MGMT 5061.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4063 Management of Corporate Philanthropy
Description: The course is designed as an opportunity for students to learn about the relationship between nonprofit and for-profit organizations, about individual and corporate philanthropy, and possibly to take part in a philanthropic experience.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4073 Management and Ethical Leadership
Description: This course focuses on the application and evaluation of real-life ethical dilemmas using ethical decision-making models. Students will evaluate personal value systems, individual, leadership driven, organizational, and community ethical issues. Students may not take both MGMT 4073 and MGMT 5073 for credit.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4083 Corporate and Social Responsibility
Prerequisites: MGMT 3013.
Description: Companies and organizations are powerful entities and have potential to harm or to do good in the pursuit of profit. This "good" is corporate social responsibility (CSR) and it's becoming a necessity in the corporate world. Students will be exposed to managerial responsibility as well as social responsibility at the corporate level. Teaching methods may include case analysis and business simulation. May not be used for degree credit with MGMT 5083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4093 Management of Nonprofit Organizations
Description: Students will be introduced to the role of nonprofits in the economy including management systems, strategy, and the interface between nonprofits, other businesses and various stakeholders. May not be used for degree credit with MGMT 5093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4123 Labor Management Relations
Prerequisites: MGMT 3013.
Description: Labor relations and collective bargaining. Negotiation and administration of labor agreements and employee relations in non-union organizations. Modes of impasse resolution.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4133 Total Rewards
Prerequisites: MGMT 3313.
Description: This introductory course focuses on the fundamentals of compensation; such as, the legislative environment, compensations theories, job analysis, job evaluation, wage structures, and indirect compensation programs. May not be used for degree credit with MGMT 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4143 Managing Stress and Anxiety at Work
Description: Exploring the dynamics of stress and anxiety in the workplace from both managerial and employee perspectives. Students will be exposed to psychological theories and organizational practices to learn creative strategies aimed at fostering resilience, enhancing well-being, and optimizing productivity in the face of workplace pressures. Through case studies, discussions, and practical exercises, students will develop actionable integrating evidence-based techniques for developing personal resilience and supportive workplaces.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4153 Talent Development
Prerequisites: MGMT 3313.
Description: The role of training and development in organizational sustainability and competitiveness is examined. Topics include assessing training needs, developing and delivering training, evaluating training effectiveness, and career development. Students develop a training program and trainer skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4163 Fundraising for Nonprofit Organizations
Description: Students will be introduced to the theory and practice of raising external funding for social causes. Course may include exposure to external speakers and nonprofit executives. May not be used for degree credit with MGMT 5163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4213 The Fair Workplace (D)
Description: Students are introduced to an increasingly diverse American workforce. Successful leaders need to understand the legal dynamics of fairness (e.g., equal employment opportunity legislation), the cultural issues that challenge inclusiveness at work, and the interpersonal competence that enables them to interact with a wide-range of individuals. In this class, students will examine how managers build a successful organization by embracing fair organizational practices for diversity and inclusion.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management
General Education and other Course Attributes: Diversity

MGMT 4233 Legal and Ethical Issues in a Diverse Workplace
Prerequisites: MGMT 3013
Description: Explores legal and ethical issues related to managing a diverse workplace. Students will learn about the impact of discrimination and apply concepts of diversity and inclusion. Regulatory environment will be explored as well as employment practices, prohibitions of discrimination and harassment based upon race, national origin, gender, age, disability, and sexual orientation, and will focus on the link between issues of racism/diversity and ethical behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4313 Organization for Action
Prerequisites: MGMT 3013.
Description: A behavioral approach to the study of inter-organizational processes and the implementation strategies of firms. Building on Strategic Management and Human Resource Management, from the behavioral science, the study of the cognitive, social, cultural, and political aspects of strategy implementation in simple and complex organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4403 Environmental Sustainability for Business
Description: The course reviews human-nature relationships and how they affect the ability of future generations to sustainably improve their quality of life. The course also considers methods of environmental stewardship that can contribute to sustainability. In-class and/or online discussions of issues, guest presentations by outside experts, and reports on selected topics are included.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4413 Change Management
Prerequisites: MGMT 3013.
Description: Managing organizational change and redesign. The study of organizational change processes and the enhancement of performance through change management. Study of the body of knowledge and applications in this branch of organizational science.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4423 Environmental Problem Analysis for Business
Description: This course reviews the process of environmental problem analysis using current practical examples. This course draws on theories from various disciplines and applies appropriate techniques of analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4453 Environmental Management Practicum for Business
Description: This course explores methods of analyzing sustainable solutions to complex environmental, safety and health problems using an integrated team approach. This approach combines technical, legal, economic, and sociopolitical information into a coherent analytical framework.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4463 Industrial Ecology for Business
Description: Provides students with an overview and broad understanding of ecology principles as applied to an industrial setting. The course begins with an overview of general ecological principles such as ecosystem components and structures, biogeochemical cycles, energy flows, and properties of populations. The course concludes with a consideration of industrial ecology principles such as sustainability, pollution prevention, life cycle assessment and waste minimization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4493 Applied Environmental Standards for Business Managers
Description: Foundational understanding of the complex regulatory framework related to waste management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4513 Strategic Management
Prerequisites: Senior standing and ACCT 2003 (or ACCT 2103 and ACCT 2203), and ECON 2003, and MSIS 2233, and MSIS 2103, and MGMT 3013, and MKTG 3213.
Description: Builds on concepts from business core courses to explain the upper management tasks of formulating and implementing strategies that increase organizational performance. Teaching methods may include case analysis and business simulation. Course previously offered as BADM 4513 and BADM 3513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4533 Leadership Dynamics
Prerequisites: MGMT 3013.
Description: Contemporary business challenges require managerial leadership of the highest order. Students will learn about the latest developments in leadership theory and research. Students will also gain experience in putting into action the concepts learned in this class. May not be used for degree credit with ORGL 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4543 Management Analytics
Prerequisites: MGMT 3313.
Description: This course focuses on the application of analytic procedures and theories to the practice of human resource management. Topics include: research methods, psychometrics, descriptive statistics, inferential statistics, correlation, linear prediction, and other methods as deemed appropriate by the instructor. Students will show competence In proper data collection and evaluation techniques, as well as skills necessary to write up and present quantitative findings. May not be used for degree credit with STAT 3013 or PSYC 3214. Previously offered as MGMT 3513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4573 Managerial Decision Making
Prerequisites: MGMT 3013.
Description: The goal of this course is to help students become more effective decision-makers. It attempts to provide an understanding of decision-making at two levels - the individual and the group. It examines the mechanisms that underlie decision choices, preferences, and judgments, and through this examination, attempt to discover how to improve decision-making processes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4613 International Management (G)
Prerequisites: MGMT 3013 or MGMT 3123.
Description: Survey of the organization, planning and management of international operations of business firms. Exploration of major cultural, economic and political systems and their effects on the management function.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management
General Education and other Course Attributes: International Dimension

MGMT 4623 Small Business Management
Prerequisites: MGMT 3013 or MGMT 3123.
Description: Starting and managing a small business.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4633 Business Management Consulting
Description: Techniques required for locating business opportunities and evaluating potential, business consultancy, and identifying best practices in industry. Students will explore a typical consulting project from beginning to end.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4650 Leadership Issues
Prerequisites: MGMT 3013.
Description: Examination of leadership issues. Specific topics vary from semester to semester. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Management

MGMT 4693 International Human Resource Management
Prerequisites: MGMT 3013 required, MGMT 3133 preferred and LSB 4423 recommended.
Description: A comparison of human resource management policies and practices in the United States with those of major U.S. trading partners. Major human resource functions such as planning, staffing, training, compensation, performance appraisal and labor relations. Human resource policies and practices of China, Japan, Mexico, Canada and other countries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4713 Negotiation Essentials
Prerequisites: MGMT 3013.
Description: Fundamentals of effective negotiation and dispute resolution practices. Current theory, strategies and tactics. More effective negotiations and how to secure "win-win" solutions. May not be used for degree credit with MGMT 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4743 Advanced Sports Management
Prerequisites: MGMT 3943.
Description: This course builds on the material covered in MGMT 3943. More in-depth coverage is given to selected topics related to managing a sports entity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4750 International Leadership Experience
Description: This course focuses on developing leadership skills through international travel. Students will learn the skills and values used by leaders in other countries. The cultural and business environment faced by leaders in other countries will also be explored. Offered for fixed 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4793 Research Studies on People and Organizations
Prerequisites: MGMT 3013
Description: Introduction to research studies in contemporary management topics. Students will be exposed to cutting edge research topics and learn how to generate literature searches, write testable hypotheses, operationalize variables, design experimental studies and disseminate research results. The aim of this course is not to make you an expert in a particular topic or area, but to help you determine what designs and approaches would be most appropriate to answer your research questions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4813 Talent Acquisition
Prerequisites: MGMT 3313.
Description: This course focuses on the theories and methods of recruiting and selecting employees; such as, job analysis, human resource planning, recruiting, employment laws, and staffing. Staffing methods include interviews, references, application blanks, cognitive ability, personality tests, and others. Development and critique of a selection plan as well as conduct of a behavioral interview are analyzed. May not be used for degree credit with MGMT 5823.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4843 Strategic Sport Management
Prerequisites: MGMT 3943.
Description: An in-depth analysis and review of revenue generation in the sport industry. Topics will include past and present examples from many different types of sports, both in the United States and internationally. Revenue generation strategies will be discussed in terms of management planning and decision making.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4850 Applied Leadership Studies
Prerequisites: MGMT 3013.
Description: Structured internship of field project with supporting academic study. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Management

MGMT 4883 Multiple Perspectives in Global Management
Prerequisites: MGMT 3013 or MGMT 3123.
Description: View of how multinational corporations and cross-border business transactions have an impact on countries, cultures, employees, and ecological systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 4943 International Sports Management (G)
Description: A broad overview of the industry of sports around the globe. The historical, political, cultural, and business influences of sport development and management across the world will be discussed. The similarities and differences in organizational and management strategy from various countries, regions, and continents will also be examined.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management
General Education and other Course Attributes: International Dimension

MGMT 4963 Online and Mobile Gaming Management
Prerequisites: MGMT 3013 and LSB 3213.
Description: Comprehensive overview of the online and mobile gaming industry in the United States. Students will conduct immersive examinations and work collaboratively to understand the key components of managing a business in the highly regulated online and mobile gaming industry. Comparisons of online gaming and brick-and-mortar gaming will be explored. May not be used for degree credit with MGMT 5963.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Management

MGMT 5011 Crucial Interactions
Description: Examines methods for increasing positive communication between you and organizational members. Crucial conversations are those conversations that we must have. Ways to increase the free-flow of dialogue to maximize benefit from a crucial conversation are discussed. No credit for students with credit in MGMT 4011.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5021 Managing Professional Relationships
Description: The study of political behaviors and ways to use them effectively in order to be successful in your career. Ways to be prepared for political dynamics at work and what you can do to emerge a winner will be discussed. No credit for students with credit in MGMT 4021.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5031 Leading Organizational Change
Description: An introduction to ways of leading change in an organization to keep pace with the economy and the competition. Building an eight step process for developing, selling and implementing change initiatives. No credit for students with credit in MGMT 4031.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5033 Management of Sustainable Enterprises
Description: Students will be introduced to the social and natural environments and threats to sustainability. The course will cover the external drivers of sustainability as well as internal responses to these pressures. May not be used for degree credit with MGMT 4033. Previously offered as MGMT 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MGMT 5041 Performance Management
Description: A study of the role of a performance management (PM) system in an organization, the basic components of a PM system (standards, measurement, judgment and action), PM methods and performance management interviews and the Balanced Scorecard. No credit for students with credit in MGMT 4041.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5051 Creating Ethical Work Places
Description: An examination of the meaning of ethics in business and human resource management, how ethical, work-related behavior can be maximized, and how ethical organizational cultures facilitate organizational effectiveness. Establishing and critiquing an ethics program and examining your own code of ethics. No credit for students with credit in MGMT 4051.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5061 Managing Confrontations
Description: Crucial confrontations directly address gaps between expectations and performance with a model that ensures individual and team effectiveness. Learn to hold people accountable, master face-to-face performance discussions, motivate without using power, enable without taking over, and move to action. It will improve the quality of your life and of your organization. No credit for students with credit in MGMT 4061.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5073 Management and Ethical Leadership
Description: This course focuses on the application and evaluation of real-life ethical dilemmas using ethical decision-making models. Students will evaluate personal value systems, individual, leadership driven, organizational, and community ethical issues. Students may not take both MGMT 4073 and MGMT 5073 for credit.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5083 Corporate and Social Responsibility
Description: Ethics and decision-making in corporations. Students will be exposed to managerial responsibility as well as social responsibility at the corporate level. Students may not take both MGMT 4083 and MGMT 5083 for credit.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5093 Management of Nonprofit Organizations
Description: Students will be introduced to the role of nonprofits in the economy including management systems, strategy, and the interface between nonprofits, other businesses and various stakeholders. May not be used for degree credit with MGMT 4093.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5113 Individual and Organizational Behavior
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: This course integrates the fields of management principles and practices with the study of individual and group behavior within organizations. The focus will be upon translation of management and organizational behavior theory to practices that result in organizational effectiveness, efficiency, and human resource development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MGMT 5123 Org Design & Research
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Examination of selected topics representing the most current management theories and practices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5133 Total Rewards
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: This course covers the development, implementation, and evaluation of compensation and benefits policies/programs. Students will learn the underlying theory as well as complete projects deemed necessary to master this material. Additionally, content will be provided to cover the legal environment, governing total rewards programs, administrative functions, and communication of total rewards programs' goals. May not be used for degree credit with MGMT 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5153 Talent Development
Description: A study of training development (T&D) concepts and methods. A study of the theories, principles, methods, and related terminology of T&D and their application to T&D problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MGMT 5163 Fundraising for Nonprofit Organizations
Description: Students will be introduced to the theory and practice of raising external funding for social causes. Course may include exposure to external speakers and nonprofit executives. May not be used for degree credit with MGMT 4163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5213 Seminar in Organizational Behavior
Prerequisites: Admission to MBA program or consent of MBA director.
Description: Current research on group behavior in organizations. Group processes and structural factors affecting the interaction process and intra- and intergroup performance characteristics. Laboratory simulation and team research projects used to pursue advanced topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5223 Seminar in Human Resource Management
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Principles, theories and methods of human resource management applied to various types of organizations. Human resource functions of planning, staffing, training and development, performance management, compensation and benefits, safety and health, and labor relations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5303 Corporate and Business Strategy
Prerequisites: FIN 5013 or concurrent enrollment.
Description: Key issues in formulating and implementing business and corporate strategies. The orientation of top management and diagnosis of what is critical in complex business situations and realistic solutions to strategic and organizational problems. Course previously offered as MBA 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MGMT 5313 Project Management
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: The processes and techniques of managing projects in today's business world. The processes of idea generation, needs analysis, implementation, evaluation, and learning. The techniques of team building and conflict resolution in project management. Course previously offered as MSIS 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5323 Teams in Organizations
Prerequisites: MGMT 5113, admission to MBA program or consent of MBA director.
Description: The different ways in which organizations use teams. Many aspects of team development and the skills needed to effectively work in a team environment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MGMT 5453 Technology Commercialization
Prerequisites: Admission to MBA program or consent of MBA director.
Description: The steps involved in evaluating and commercializing new technologies. The necessary steps in moving from prototype to product.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5500 Special Projects in Management
Description: Structured internship, academic project, or field project on a management topic under the direction of a faculty member. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5533 Leadership Challenges
Prerequisites: MGMT 5113, admission to MBA program or consent of MBA director.
Description: Contemporary leadership practices. Leadership as a behavior, not as a position. The challenges of leadership, regardless of position.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MGMT 5543 Human Resource Analytics
Description: Topics include: research methods, psychometrics, descriptive statistics, inferential statistics, correlation, linear prediction, and other methods as deemed necessary by the instructor. Students will show competence in proper data collection and evaluation techniques, as well as skills necessary to write up and present quantitative findings. Students will apply these concepts practically over the course of the semester and will be expected to develop their own data sets for analysis. Previously offered as MGMT 5523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5553 Management of Technology and Innovation
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Business applications of research, practice, and theory in the management of technology and innovation. To improve the effectiveness by which technologies are developed, implemented, and institutionalized. Emphasizes both management with advanced technologies and strategic management of technology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5563 Crisis in Organizations
Prerequisites: MGMT 5113, admission to MBA program or consent of the MBA director.
Description: Management and leadership in the face of crisis, from the smallest mom and pop store to the largest multinational corporation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5613 Business Opportunity Identification and Analysis
Prerequisites: Admission to MBA program or consent of MBA director.
Description: The techniques required for locating business opportunities, assessing their feasibility, and evaluating their potential returns.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5643 Sport Management
Description: Designed to give the student an understanding of the basic management skills necessary in the operation of sport organizations. Topics include the social, behavioral, and managerial foundations of sport management, public relations, finance, economics, and budgeting in the sport industry, and managing a sports facility.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MGMT 5673 Advanced Sport Management
Description: Builds on the material covered in MGMT 5643. More in-depth coverage is given to selected topics related to managing a sports entity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5713 Negotiation and Third-Party Dispute Resolution
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: This course is designed to improve students personal effectiveness and increase their productivity by drawing on the latest research in the psychology of judgment combined with the art of negotiation and decision-making. Students learn to develop effective strategies and systematic approaches to negotiations and influence opportunities. May not be used for degree credit with MGMT 4713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5743 Intl Negotiations
Prerequisites: Admission to MBA program or consent of MBA director.
Description: Improvement of negotiation skills and learn how cultural and national issues affect negotiations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5750 International Leadership Experience
Description: This course focuses on developing leadership skills through international travel. Students will learn the skills and values used by leaders in other countries. The cultural and business environment faced by leaders in other countries will also be explored. Offered for fixed 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management
Additional Fees: SSB Study Abroad Tuition fee of $550 and Study Abroad fee of $250 apply.

MGMT 5800 Special Topics in Management
Description: Exploration of emerging management topics. Specific topics will vary from semester to semester. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5823 Talent Acquisition
Description: This course focuses on the process of talent acquisition. Course topics include: human resource planning, position analysis, recruiting practices, selection, employment offers, and verification procedures. Students will study underlying human resource management theory and complete projects deemed necessary for mastery of the material. The course will also cover material related to the development, implementation, and evaluation of selection systems and the legal environment as it pertains to talent acquisition. Related topics will be discussed at the discretion of the instructor. May not be used for degree credit with MGMT 4813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5843 Advanced Strategic Sports Management
Description: Brand management in collegiate sports, the role of collegiate athletics in higher education in the United States, brand management in sports merchandising and entertainment, stadium financing and politics, franchise movement, legal cases, biographical stories, and the role of sports and tourism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5943 Advanced International Sports Management
Description: Historical, political, cultural, and business influences of sport development and management across the world. Emphasis on similarities and differences in organizational and management strategy form various countries, regions and continents.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 5963 Online and Mobile Gaming Management
Description: Comprehensive overview of the online and mobile gaming industry in the United States. Students will conduct immersive examinations and work collaboratively to understand the key components of managing a business in the highly regulated online and mobile gaming industry. Comparisons of online gaming and brick-and-mortar gaming will be explored. May not be used for degree credit with MGMT 4963.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6303 Advanced Human Resource Management
Description: Theory and research focusing on understanding human interactions in organizational contexts. The topics fall within the organizational behavior/human resources (OB/HR) domain and include work performance, counterproductive work behavior, individual differences, recruiting and selection, performance management, turnover, norms, and organizational culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6313 Advanced Organizational Behavior
Prerequisites: Doctoral student standing and consent of instructor.
Description: Theory and research focusing on individual and group behavior in organizations. Both classic and contemporary topics in organizational behavior, including work attitudes, motivation, job design, leadership, group processes, power and politics, and individual differences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6323 Advanced Strategic Management
Prerequisites: Doctoral student standing and consent of instructor.
Description: Research concerning the content of organizational strategy and the process through which it is formulated and implemented.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6333 MESO Organization Studies
Prerequisites: Doctoral student standing and consent of instructor.
Description: Integration of macro- and micro-level concepts and topics across individual, group and organizational levels of analysis. Work and organization design, teams and groups, decision-making, and conflict management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6343 Contemporary Research in Management I
Prerequisites: Doctoral student standing and consent of instructor.
Description: Introduction to the research process in management and building a career as a management scholar.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6353 Research Design
Prerequisites: Doctoral student standing and consent of instructor.
Description: Course examines issues in theory building and development, strategies for collecting behavioral research. At conclusion of course, student should be able to: develop research questions, develop appropriate measures for constructs to be tested, and design research study using various methodologies. Same course as BADM 6353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6363 Advanced Organization Theory
Description: Advanced organization theory in the field of management research. Analysis of key theoretical contributions within the field of management and related disciplines.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6383 Applied Regression and ANOVA
Description: Focus on regression models and associated methods, data analysis, interpretation of results, statistical computation and model building. Students will be introduced to managing data and analysis, simple and multiple linear regression, regression assumptions, the use of categorical variables; residuals and diagnostics; model building/variable selection, and sources of bias including common method variance and endogeneity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6443 Contemporary Research in Management II
Prerequisites: Doctoral student standing and consent of instructor.
Description: Specialized contemporary topics in management for doctoral students.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6453 Advanced Multivariate Regression
Prerequisites: Doctoral student standing and consent of instructor.
Description: Topics include psychometrics, construct validation, factor analysis, moderation, mediation, polynomial regression and response surface analysis, logistic regression, path and panel analyses, and longitudinal analyses. The focus is on developing mastery of data analyses using regression and structural equation modeling software (SEM), interpreting analyses, and developing practical research skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

MGMT 6553 Applied Multivariate and Structural Equation Modeling
Prerequisites: Doctoral student standing and consent of instructor.
Description: Focuses on developing and testing more nuanced hypotheses such as those involving moderated mediation, change, and non-linear effects. In addition, more sophisticated analytical approaches necessary to deal with complex samples, contexts, and measurement will be introduced; such as, structural equation modeling, multilevel modeling, polynomial and spline regression, and logistic regression.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Management

Management Science & Information Systems (MSIS)

MSIS 2103 Business Data Science Technologies
Description: The class focuses on problem solving with data analytics tools and technologies that are key to organization decision making. Emphasis is placed on decision making with spreadsheets and databases. Key information systems and cybersecurity concepts are also studied.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 2203 Computer Programming for Business
Description: Problem solving and computer programming for business. Fundamental principles and constructs of programming. Fundamentals of a current applied business programming language.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 2233 Business Analytics Fundamentals (Q)
Prerequisites: 3 hours of MATH or STAT with "A" designation.
Description: Introduces the basic concepts of business and data analytics utilizing spreadsheets and visualization software. Topics will include a review of necessary business quantitative skills, applicable descriptive analytics measures, probabilistic decision-making and how to tell an "effective story" through the use of data and analytics tools. May not be used for degree credit with CPS 4213. Previously offered as BADM 2233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
General Education and other Course Attributes: Analytical & Quant Thought

MSIS 3023 Technology, Diversity and Entrepreneurship
Description: A study of technology, diversity and entrepreneurship. The use of technology as a research tool to study diversity and the opportunities available to diverse groups through entrepreneurship.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3103 End User Database Systems Design and Management
Prerequisites: Non-MIS or CS or Business Analytics or Data Analytics or Accounting Systems majors only.
Description: Intended for less technically oriented students who wish to gain an understanding of relational databases. Principles and techniques of logical database design and related database concepts. Analysis, design and implementation of a database system using a relational DBMS. No credit for students in the MIS, Business Analytics, Data Analytics or Accounting Systems majors. Students desiring a more technical approach should take MSIS 3333 instead.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3153 International Telecommunications Business Environment
Description: This course concentrates on understanding the implications and challenges of utilizing telecommunications networks in today's global business environment. Emphasis will be placed on identifying the major players in the global information infrastructure, standards setting bodies and procedures, and the various regulatory processes encountered. Students will research the telecommunications industry in other countries and develop comprehensive written reports. Course previously offered as TCOM 3153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3163 Web Design Essentials
Description: Web design principles including UX/UI, HTML/CSS, scripting, database management, and other relevant topics using the latest professional tools.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3203 Advanced Computer Programming for Business
Prerequisites: MSIS 2203.
Description: Advanced programming features are examined with an emphasis on the development of computer programs for business applications. Previously offered as MSIS 4203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3223 Principles of Data Analytics
Prerequisites: MSIS 2103 and (MSIS 2233 or MATH 2103 or higher).
Description: Problem solving with descriptive, predictive and prescriptive analytics in a business context using spreadsheets and other analytic tools. Techniques include forecasting, optimization, location analysis, decision analysis, inventory management, among others. May not be used for degree credit with CPS 4213. Previously offered as MGMT 3223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3233 Management Science - Prescriptive Analytics
Prerequisites: MSIS 3223.
Description: Prescriptive analytics applied to resource allocation and operational problems encountered in accounting, economics, finance, management and marketing. Linear programming, goal programming, integer programming, and network models.. Previously offered as MGMT 3233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3243 Descriptive Analytics
Prerequisites: MSIS 3223.
Description: Application of descriptive analytics, especially from a "big data" perspective. Previously offered as MGMT 3243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3253 Supply Chain Operations and Analytics
Prerequisites: MSIS 3223.
Description: Practical tools that support supply chain operations using relevant data and analytic models.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3293 Business Analytics Programming
Prerequisites: MSIS 2103 or MSIS 2233.
Description: Fundamental principles of programming for business analytics, with a focus on data wrangling concepts and tools.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3333 Database Systems Development
Description: This class is intended for those technically oriented students earning a MIS, DA, ACCT, MATH, STATS, or CS degree and/or taking classes to fulfill Data Science options or other certificate programs that require a data base course. Database design principles focusing on database modeling with hands-on creation, population and querying of transactional databases using SQL. May not be used for degree credit with MSIS 5643. Course previously offered as MSIS 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3363 Web Application Development
Prerequisites: MSIS 2203 and MSIS 3333.
Description: Develop web applications involving database development, user interface design, and asynchronous client-side programming.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3393 Advanced Spreadsheet Modeling and Programming
Prerequisites: MSIS 2103 and permission of instructor.
Description: This class provides students with advanced spreadsheet skills, including the ability to formulate math programming models, simulations, risk analysis, and other business decision-making tools. The class will also provide students with an introduction to spreadsheet programming (VB, macros, etc.), building decision support systems in spreadsheets, etc.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 3931 Diversity Impacts in Information Systems (D)
Description: Critical analysis of the impact of technology on socially-defined classifications such as race, ethnicity, age, gender, sexuality, and disability; and how those groups affect technology industries. Through reading, observation, discussion, and writing; students will have their own perceptions challenged to better understand technology interaction through and with diverse populations, and how relationships between those groups may be improved or worsened as a result of mediated communications.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
General Education and other Course Attributes: Diversity

MSIS 4003 Systems Analysis and Design
Prerequisites: MSIS 3363.
Description: This course covers the core concepts and skills for developing software in an organizational context, including agile software development techniques, as well as the socio-cultural aspects of the systems analysis and design process. May not be used for degree credit with MSIS 5653. Course previously offered as MSIS 3303 and MGMT 3033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4010 Applied Analytics and Information System Studies
Prerequisites: Departmental permission.
Description: Structured internship, field study or independent project with supporting academic study. Intended primarily for students pursuing a Data Analytics or MIS degree, or related areas or certificate programs. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mgmt Sci & Info Sys

MSIS 4020 Applications Software Tools and Techniques
Prerequisites: Permission of instructor and/or department.
Description: Hands-on experience with selected software-based tool or programming languages such as SAP, SQL, PERT/CPM, etc. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4033 Information Systems Project Management and Communication
Description: This class discusses the multi-faceted dimensions critical to successfully leading information systems projects. Topics will include behavioral, strategic, technical, quantitative and communications issues faced by those directing projects. May not be used for degree credit with MSIS 5033. Course previously offered as MSIS 3033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4053 Supply Chain Security and Risk Analysis
Description: This course examines the threats and vulnerabilities to an organization's supply chain and identifying controls that can be used to mitigate such threats. Physical and cyber will be examined.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4063 STUDY ABROAD: Contemporary Global Impacts in IT, Analytics and Cybersecurity (G)
Description: A study of business in a country and region that will provide an integrated approach to the rich cultural, commercial, historical, technological, political, economic, and religious issues. The country's role as a political and economic power will be examined. Comparisons of technology, policies, and economies will be made, as well as investigating hurdles and synergies to doing business between that country and the U.S. An increased focus will be placed on IT, Analytics, Cybersecurity and Supply Chain Management issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
General Education and other Course Attributes: International Dimension

MSIS 4111 Technology Success Skills Application
Prerequisites: Senior standing and 12 hours of upper division MSIS classes.
Description: Advanced professional development and networking for information systems and analytics students. Intended primarily for Data Analytics and MIS majors, as well as those outside the department (and college) pursuing certificates in related areas such as Data Systems, Supply Chain Management, and other areas.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4123 Cybersecurity Systems Management
Description: A broad investigation of the elements of cybersecurity with an emphasis on the management impact and risk assessment and mitigation for all types of information and privacy threats to corporations and businesses. May not be used for degree credit with MSIS 5213. Previously offered as MSIS 3123, MSIS 4223 and MGMT 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4133 Information Technologies for Electronic Commerce
Prerequisites: MSIS 4003.
Description: The Internet and web-based technologies, systems and applications that allow organizations to overcome the barriers of time and distance for conducting commerce. Scripting and markup languages, web programming tools, and the connectivity technologies for designing and developing electronic commerce and systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4153 Supply Chain Systems and Technologies
Description: This course covers the underpinning technologies, systems, platforms and models that enable the design, management and control of digitally connected supply chains.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4233 Applied Ethical Hacking
Prerequisites: MSIS 4123, MSIS 4523.
Description: Technical aspects of attacking and guarding against (cybersecurity) attacks in information systems. Course content includes ethical hacking concepts and defense protection topics. May not be used for degree credit with MSIS 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4243 Digital Forensics and Incident Response
Prerequisites: MSIS 4123.
Description: Procedures for identification, preservation and extraction of electronic evidence. Provides an understanding of underlying theory and strategy of investigations. May not be used for degree credit with MSIS 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4253 System Certification and Accreditation
Prerequisites: MSIS 4123.
Description: Introduction to the certification and accreditation process. Risk analysis, system security analysis, and other topics. Previously offered as MGMT 4253. May not be used for degree credit with MSIS 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4263 Business Intelligence and Predictive Analytics
Description: Applied knowledge management tools and techniques for organizational decision support. Predictive analytics, machine learning, and other emerging techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4273 Legal and Ethical Issues in Information Systems
Description: Reviews the current status of information systems law in regard to rights of privacy, freedom of information, confidentiality, work product protection, copyright, security, legal liability, ethical issues, and a range of additional legal and information policy topics. Investigates the legal difficulties that technological innovations are causing in all of these areas. Legal options for dealing with the conflicts caused by technological change and likely adaptations of the law over time in response to societal changes will be explored. May not be used for degree credit with MSIS 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4283 Operating Systems for Information Assurance
Description: Operating Systems (OS) concepts for security. Vulnerabilities and threats. Security models. User authentication. Smart cards: architectures, technologies, application environments, and case studies. System availability. Software and data integrity. Auditing. Sensitive data confidentiality. Access control. Secure OS development: design principles, design methodologies, security certification. Case studies: Unix/Linus, MS/Windows XP/2000.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4333 Data Wrangling
Prerequisites: MSIS 3293 and MSIS 3333.
Description: Foundations of data wrangling, specifically the skills needed to load, clean, transform, and structure data from diverse sources, in both traditional and cloud-based data warehousing architectures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4363 Advanced Application Development
Prerequisites: MSIS 4003 and MSIS 3363.
Description: Managing the software development pipeline. Topics include creating build/release pipelines for continuous integration/deployment, containerizing applications and emerging DevOps topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4373 Advanced Topics in Management Information Systems
Prerequisites: Senior standing and consent of instructor.
Description: Current and emerging advanced topics in the field of management information systems. Advanced network management, advanced electronic commerce issues, international management information systems and legal and regulatory issues in telecommunications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4443 Advanced Topics in Analytics and Artificial Intelligence
Description: Emerging topics in analytics, including simulation, business dynamics, blockchain/cryptocurrency, artificial intelligence, supply chain, among others. Previously offered as MGMT 4443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4523 Infrastructure Development
Description: Broad coverage of network types and protocols used to drive the diverse voice, video and data needs of today's business. Network vocabulary and the understanding of how telecommunications components function are stressed. May not be used for degree credit with MSIS 5203. Previously offered as MGMT 4523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4623 Data Science Programming
Prerequisites: MSIS 3293
Description: Programming concepts and applications for data science, analytics, and business intelligence. May not be used for degree credit with MSIS 5193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4673 Data Visualization
Description: This course will provide an understanding of the role of descriptive analytics, visualization, and dashboarding in direct support of managerial decision making (business intelligence and analytics). May not be used for degree credit with MSIS 5673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4713 Scripting Essentials
Description: Application of scripting languages (e.g. BASH, PowerShell, Python) for general business, data and information assurance solutions. May not be used for degree credit with MSIS 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 4943 Sports Management Analytics
Prerequisites: MSIS 2233
Description: Useful decision tools such as analytics, visualization, optimization, decision analysis, forecasting and simulation are used to address decisions faced by sports administrators and decisions made during sporting contests. Current 'hot' issues in sports decision-making will also be examined.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5020 Advanced Applications Software Tools
Description: Advanced hands-on experience with selected software-based tool or programming languages such SAP, SQL, PERT/CPM, etc. For graduate credit only. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5033 Information Systems Project Management
Prerequisites: Graduate standing.
Description: This class covers the important multi-faceted dimensions of directing and leading information systems projects. Topics will include behavioral, strategic, technical and quantitative issues faced by information system project teams. May not be used for degree credit with MSIS 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5123 Enterprise Resource Planning
Prerequisites: Admission to a graduate program.
Description: Challenges of data integration and redesign of processes in organizations. Introduction to enterprise resource planning (ERP) concepts, software, and practices. ERP issues architecture, planning, design, implementation, and project management. Extensions of ERP Technologies for managing supply chains and customer relationships. Emerging trends.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5133 Advanced Web Based Application Development
Prerequisites: Graduate standing and MSIS 5643 or equivalent.
Description: Development of n-tier web-based applications, including concepts and technologies relating to the presentation, business, and data tiers. Technologies include (but are not limited to) browser and other client programming, server-side programming, data tier programming and XML technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5193 Programming for Data Science and Analytics I
Prerequisites: Graduate standing and computer programming proficiency, or consent of instructor.
Description: Programming concepts and applications for data science, analytics, and business intelligence covering data manipulation, data derivation, web content mining, visualization, text mining, and other topics. May not be used for degree credit with MSIS 4623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5203 Advanced Infrastructure Development
Description: Broad coverage of the underlying infrastructure necessary for information systems operation. Understanding and experience with essential network connectivity as well as server and service architecture to support information systems is emphasized. May not be used for degree credit with MSIS 4523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5213 Cybersecurity Systems Management
Description: A broad investigation of the elements of cybersecurity with an emphasis on the management impact and risk assessment and mitigation for all types of information and privacy threats to businesses. Course previously offered as TCOM 5223. May not be used for degree credit with MSIS 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5223 Programming for Data Science and Analytics II
Prerequisites: MSIS 5193 and graduate standing.
Description: Programming concepts and applications for data science, analytics, and business intelligence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5233 Advanced Applied Ethical Hacking
Prerequisites: MSIS 5213 and MSIS 5203.
Description: Advanced technical aspects of ethical hacking concepts and defense protection strategies for information systems. May not be used for degree credit with MSIS 4233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5243 Information Technology Forensics and Incident Response
Description: Review of systems for vulnerabilities and analysis of systems that have been breached including incident response. May not be used for degree credit with MSIS 4243. Course previously offered as TCOM 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5253 Advanced System Certification and Accreditation
Prerequisites: MSIS 5213.
Description: Preparing information systems for operational status requires significant planning and sound execution. Covers the key components of the certification and accreditation process, including risk assessment and mitigation, system security analysis, controls and system documentation. May not be used for degree credit with MSIS 4253. Course previously offered as TCOM 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5263 Information Assurance Offense
Prerequisites: MSIS 5233 and graduate coordinator permission.
Description: Learning successful computer attacks so as to recognize and apply appropriate security controls for system vulnerabilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5273 Legal and Ethical Issues in Information Technology
Description: This course reviews the current status of information systems law in regard to rights of privacy, freedom of information, confidentiality, work product protection, copyright, security, legal liability, ethical issues and a range of additional legal and information policy topics. May not be used for degree credit with MSIS 4273. Course previously offered as TCOM 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5283 Secure Information Systems Administration
Prerequisites: MSIS 5213 and MSIS 5773 and graduate coordinator permission.
Description: Introduction to basic concepts and technologies relevant to secure information systems administration. The topics covered in this course include, but are not limited to, operating system (OS) hardening, securing servers, network protection, and various access control mechanisms.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5293 Information Assurance Capstone
Prerequisites: Final semester in program; graduate coordinator permission.
Description: This capstone course takes a strategic view of corporate information assurance. The goal is to provide an overarching view of an information assurance program to include physical, personnel, operational, and cyber security, including the underlying legislation and Federal and state regulations that drive corporate IA programs and policy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5303 Prescriptive Analytics
Prerequisites: Admission to a SSB graduate program.
Description: Application of prescriptive analytic techniques to business problems. Some descriptive analytics may also be covered.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5313 Supply Chain Analytics
Prerequisites: Graduate standing.
Description: Introduction to supply chain analytics including forecasting, scheduling, inventory, distribution, site selection, and other analytical tools and techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5393 Advanced Spreadsheet Modeling
Description: Advanced spreadsheet modeling skills critical to business problem solving. Presentation, analysis, solution and communication facets are emphasized.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5410 Advanced Topics in Information Assurance
Prerequisites: Graduate standing and consent of program director.
Description: Advanced topics in information assurance and security. Course previously offered as TCOM 5410. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5413 Advanced Data Science Applications
Prerequisites: Graduate standing and permission of instructor.
Description: Special topics with an emphasis on emerging tools and techniques in the broad field of data science.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5503 Statistics for Data Science
Prerequisites: Graduate standing.
Description: Data Science focuses on the analysis of large secondary data sets. This course focuses on understanding and applying statistical models and techniques to obtain useful information from large data sets. These techniques are part of supervised statistical machine learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5600 Special Projects in Business Information Systems
Prerequisites: Consent of MS in MIS director.
Description: Study of advanced topics not covered directly in other classes or directed study under the supervision of a faculty member. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5613 Advanced Supply Chain Analytics
Prerequisites: MSIS 5313.
Description: Advanced tools and analytic techniques used in the supply chain field.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5623 Information and Network Technology Management
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Major principles and impact of information technology from a manager's perspective in relation to the operation and success of businesses in today's global digital economy. Topics include the Internet, networks and wireless systems, database management systems, decision support systems, social media and e-business applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5633 Predictive Analytics Technologies
Prerequisites: Graduate standing.
Description: A comprehensive analysis of contemporary business intelligence tools and techniques used in managerial decision-making, including decision support systems, data and text mining, knowledge management, expert systems, neural networks, and other tools and techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5643 Graduate Database Management
Prerequisites: Graduate standing.
Description: Practical foundations of database systems. Current and emerging issues in the database field. May not be used for degree credit with MSIS 3333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5653 Advanced Systems Analysis and Design
Prerequisites: Graduate standing.
Description: Systems thinking. Systems life cycle, modeling approaches, methods, tools, and techniques of systems analysis and design for the development of modern organizational information systems. May not be used for degree credit with MSIS 4003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5663 Advanced Data Wrangling
Description: Provides an introduction of the major activities involved in data engineering. These activities include understanding fundamental principles and concepts, design principles, and prototype development to include table definitions, ETL logic, and example report definitions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5673 Descriptive Analytics and Visualization
Description: This course will provide an understanding of the role of descriptive analytics, visualization, and dashboarding in direct support of managerial decision making (business intelligence and analytics). Specifically, knowledge about managerial decision making, business intelligence, analytics, decision support systems and how they relate to other types of information systems; knowledge about human visual processing in relation to data presentation; knowledge of dashboard design and management; and knowledge about software packages and hands-on capabilities. May not be used for degree credit with MSIS 4673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5683 Advanced Analytics Technologies
Description: Project-based study of advanced application of analytic and data wrangling/data engineering type tools for large scale systems. Cannot be used for Degree credit with CS 6583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5693 Digital Transformation Strategy
Prerequisites: Graduate standing.
Description: This course covers a variety of practical and timely managerial and technical challenges faced by organizations as the new digital society and workplace continues to evolve.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5713 Scripting Essentials
Description: Application of scripting languages (e.g. BASH, PowerShell, Python) for general business, data and information assurance solutions. May not be used for degree credit with MSIS 4713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5773 The Upper Layers of Telecommunications Systems
Description: This course is designed to develop a solid and deep understanding of data/telecommunications networks. The course covers various technical components and their functions in today's communication networks, with a special focus on the upper layers of the TCP/IP protocol suite (i.e., Network, Transport, and Application). The topics covered in the course will include, but not be limited to IP packet delivery, forwarding, and routing, UDP and TCP, dynamic host configuration (DHCP), domain name (DNS) lookup, and other widely used Internet applications (e.g., Web and email). Course previously offered as TCOM 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5793 Business Applications of Artificial Intelligence
Prerequisites: Graduate Standing.
Description: Project-based study of advanced practical business applications of Artificial Intelligence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 5900 Practicum in Management Information Systems
Prerequisites: Consent of director of and admission to the MS in MIS program.
Description: Application of MIS-related methods and skills in a business environment. Integration of knowledge through real-world problem solving situations in organizational contexts. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5950 Advanced Practicum
Prerequisites: Consent of director of and admission to the MS in MIS program.
Description: Application of MIS-related methods and skills in a business environment beyond the normal practicum/internship timeframe. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Mgmt Sci & Info Sys
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MSIS 5990 Directed Studies in Information Assurance
Prerequisites: Graduate standing and consent of program director.
Description: Special advanced topics, projects and independent study in information assurance and security. Course previously offered as TCOM 5990. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 6200 Advanced Topics in Management Information Systems
Prerequisites: Doctoral student status and consent of instructor.
Description: Special advanced topics in management information systems for doctoral students. Offered for variable credit, 3-6 credit hours, maximum of 12 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Mgmt Sci & Info Sys

MSIS 6300 Contemporary Topics in MSIS Research
Prerequisites: Doctoral standing.
Description: In depth study in one or more topics in MSIS field. An ongoing conversation about major issues in the field. Topics related to any one of the areas within the broad, interdisciplinary field of management science and information systems, such as management information systems, management science, telecommunications, and operations management. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Lecture: 1-12 Contact: 1-12
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 6303 Overview of Information Systems Research
Prerequisites: Doctoral Standing.
Description: The purpose of this seminar is to become familiar with research streams and domains within Information Systems including theory, methods, paradigms, and various perspectives. Students will develop critical thinking and logical reasoning skills, as well as oral and written communication.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 6313 Privacy and Security Research in Information Systems
Prerequisites: Doctoral Standing.
Description: The purpose of this seminar is to develop an understanding of the research domains of privacy and security in Information Systems. Potential topics covered include conceptualization of concepts (e.g. intention vs. behavior, traits and states), contextual influences (e.g. e-commerce, healthcare, social media, data breaches), and methods (e.g. behavioral economic vs. hypothetical).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 6323 Seminar on Qualitative and Mixed-Methods Research
Prerequisites: Doctoral Standing.
Description: The purpose of this seminar is to provide an introduction to qualitative and mixed methods and their use in scholarly research. Drawing upon well regarded courses by top IS scholars, the course balances understanding qualitative research with the application of that understanding to business research. Within a seminar class format, this course develops skills in designing, evaluating, and understanding qualitative research methods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 6333 Overview of MSIS Research
Prerequisites: Doctoral standing.
Description: Recent research studies that fall within the broad, interdisciplinary field of management science and information systems. An introduction to the academic "way of life", focusing on research productivity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 6343 Advanced Methods in MSIS Research
Prerequisites: Doctoral standing.
Description: Development of advanced methodological skills necessary to carry out research in the chosen area of study within the field of MSIS. Skills related to any one of the areas within the broad, interdisciplinary field of management science and information systems, such as management information systems, management science, telecommunications, and operations management. Same course as BADM 6343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

MSIS 6353 Seminar in Data Analytics
Prerequisites: Doctoral Standing.
Description: The objective of this course is for the PhD student to develop an in-depth understanding and appreciation of business analytics and data science as viable research streams.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mgmt Sci & Info Sys

Marketing (MKTG)

MKTG 3112 Marketing
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3213 Marketing (S)
Description: Marketing strategy and decision-making. Consumer behavior, marketing institutions, competition and the law.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing
General Education and other Course Attributes: Society & Human Behavior

MKTG 3223 Supply Chain Management
Prerequisites: MKTG 3213.
Description: An economic and operational analysis of the physical flow of goods and materials. A system interpretation of marketing channels. Previously offered as MKTG 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3311 Managing your Personal Brand: Name, Image, & Likeness
Description: Learn the marketing and business concepts necessary for elevating a personal brand, social media influence and entrepreneurial earning power. Students will gain knowledge about marketing theory, strategy and tactics of successful branding with emphasis on audience engagement, generating followers, storytelling, and methods for leveraging your position. Students will also gain insights from current professional athletes to learn proven best practices.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3313 Personal Marketing and Professional Development
Prerequisites: MKTG 3213.
Description: The purposes of this course are (1) to provide an understanding of the role of marketing as applied to the individual student and (2) to provide students basic skills necessary for a successful business career. The course will make extensive use of outside speakers (e.g. professional trainers, alumni, recruiters, professors) covering a broad range of topics. In addition, the course will have a strong experiential dimension (both within and outside the classroom). Previously offered as MKTG 2313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3323 Consumer and Market Behavior
Prerequisites: MKTG 3213.
Description: Qualitative and quantitative analyses of the behavior of consumers; a marketing consideration of the contributions of economics and the behavioral disciplines to consumer behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3333 Nonprofit Marketing
Prerequisites: MKTG 3213.
Description: Applied marketing knowledge with attention given to those concepts and methods used in nonprofit marketing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3433 Promotional Strategy
Prerequisites: MKTG 3213.
Description: Promotional policies and techniques and their application to selling problems of the firm.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3473 Professional Selling
Prerequisites: MKTG 3213.
Description: Skills to understanding the professional personal selling process. Strong emphasis on the communications function of personal selling. Lecture sessions combined with experiential exercises and role playing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3511 Sales Practicum
Prerequisites: MKTG 3213, MKTG 3513 or concurrent enrollment in MKTG 3513.
Description: Students use their work experience, and other resources, to gain a practical understanding of sales marketing. Students must have a sales position (paid or volunteer) where they work at least 100 hours over the course of the semester.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Marketing

MKTG 3611 Retailing Practicum
Prerequisites: MKTG 3213, MKTG 3613 or concurrent enrollment in MKTG 3613.
Description: Students use their work experience, and other resources, to gain a practical understanding of Retail Marketing. Students must have a retail position (paid or volunteer) where they work at least 100 hours over the course of the semester.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Marketing

MKTG 3613 Retailing Management
Prerequisites: MKTG 3213.
Description: Applied marketing knowledge, with attention given to those concepts and methods which provide the necessary foundation for a retailing manager.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3653 Marketing Analytics
Prerequisites: MKTG 3213.
Description: Students will learn how to turn marketing data into useful information, and how to use this information to make marketing decisions. Using basic software, students will learn to identify patterns, display the patterns for useful presentation, and base managerial marketing decisions on the analysis. Tools and software are user-friendly and widely used in business. (No programming or equations are required.)
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3713 Sports Marketing
Prerequisites: MKTG 3213.
Description: Applied marketing knowledge with attention given to those concepts and methods used in sports marketing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3813 Business to Business Marketing Management
Prerequisites: MKTG 3213.
Description: A strategic overview of the marketing of products and services to business, government and not-for-profit organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 3873 Marketing or International Business Internship
Prerequisites: MKTG 3213 and two other marketing classes and must be marketing or international business major and instructor approval.
Description: Students will complete an internship with a private business, NGO, or governmental organization. Students will communicate the lesson learned from this experience. Graded on a pass-fail basis.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Marketing

MKTG 3993 International Business (G)
Description: Development of international business strategy based on the integration of economic, accounting, financial, management and marketing concepts. Previously offered as BADM 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing
General Education and other Course Attributes: International Dimension

MKTG 4053 Study Abroad: Contemporary Global Impacts in Marketing & International Business (G)
Description: A study of business in a country and region that will provide an integrated approach to the rich cultural, commercial, historical, technological, political, economic, and religious issues. The country's role as a political and economic power will be examined. Comparisons of technology, policies, and economies will be made, as well as investigating hurdles and synergies to doing business between that country and the U.S.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing
General Education and other Course Attributes: International Dimension

MKTG 4093 Current Topics International Business
Prerequisites: MKTG 3993.
Description: In this course, students will become familiar with the large-scale changes in the international business environment that are currently taking place and the possible implications of these changes for corporations. These include globalization of markets, labor and skill mobility, automation and future of jobs, and sustainability. The course uses readings and in-class discussions of the current trends and issues in international business.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4123 Influencer Marketing
Prerequisites: MKTG 3213.
Description: Influencer marketing involves using an individual's name, image, likeness, reputation, or personal communication to sell ideas, products, and/or services. Athletes, celebrities, podcasters, musicians, and many others can become successful influencers. The rise of digital communication and marketing tools has greatly heightened the presence and importance of influencer marketing. In this course, students learn influencer marketing strategies and best practices for capitalizing on opportunities to monetize influencer opportunities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4213 Advanced Supply Chain Management
Prerequisites: MKTG 3223
Description: Ever wonder how your favorite companies like Amazon, Starbucks, Walmart and FedEx get things from one end of the country to the other overnight? This course will answer such puzzling questions by providing students with an overview of supply chain management. Students in this course will learn how technology and managerial ingenuity come together to create supply chain excellence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4233 Purchasing & Strategic Sourcing in Supply Chain Management
Prerequisites: MKTG 3213
Description: This course is designed to provide an introduction to the field of purchasing and supply management. It covers topics such as how supply is organized within organizations, the standard acquisition process, purchasing-related information systems, cost management tools, negotiation strategies, supplier selection, metrics, purchasing capital goods, purchasing services, outsourcing, buyer-supplier relationships, and purchasing strategies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4243 Transportation Modalities and Logistics Management in the Supply Chain
Prerequisites: MKTG 3213
Description: This course will consist of an enriching approach of teaching transportation and logistics strategies in Supply Chain Management, while taking a deeper dive into technology, sourcing, transportation, warehousing, materials handling and returns. Students will also be provided unique opportunities to have in person tours and face to face discussions with supply chain leaders in multiple businesses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4263 Entrepreneurial Marketing
Prerequisites: EEE 3023. MKTG 3213, and completion of business core classes or instructor permission.
Description: Examination of the roles of marketing in entrepreneurial ventures and entrepreneurship in the marketing efforts of any organization. Emphasis on marketing as it relates to risk management, resource leveraging and guerrilla approaches. May not be used for degree credit with EEE 5223 or MKTG 5223. Same course as EEE 4223. Previously offered as MKTG 3263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4333 Marketing Research
Prerequisites: MKTG 3213 and MKTG 3323 and MSIS 2103.
Description: Basic research concepts and methods. Qualitative and quantitative tools of the market researcher.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4343 Brand Marketing
Prerequisites: MKTG 3213 and MKTG 3323.
Description: Examines the broad topic of brand marketing. Consumers, competitors, the media, and the government all focus on the brand as the basic unit of marketing. Thus some of the most important and exciting elements of modern business involve conceiving, building, and marketing the brand. Important issues such as building and measuring brand equity, brand positioning, brand names and logos, and global branding will be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4443 Social Issues in the Marketing Environment (D)
Prerequisites: MKTG 3213.
Description: Social and legislative considerations as they relate to the marketplace.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing
General Education and other Course Attributes: Diversity

MKTG 4473 Advanced Professional Selling
Prerequisites: MKTG 3213 and MKTG 3473 and Instructor Permission.
Description: The course builds upon the introductory sales class providing students with advanced skills for professional selling. Emphasis will be placed on practical applications through role play of a complete sales process from initial prospecting to closing the sale with high customer satisfaction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4513 Sales Management
Prerequisites: MKTG 3213.
Description: Sales planning and control, organization of the sales department, developing territories, motivating salespersons and control over sales operations. Previously offered as MKTG 3513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4543 Social Media Strategies
Prerequisites: MKTG 3213.
Description: This class will focus on ways to build brand awareness and customer loyalty on a low budget. Topics covered will be social media, blogging, events, email marketing; analytics and more. May not be used for degree credit with MKTG 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4550 Problems In Marketing
Prerequisites: MKTG 3213.
Description: Problems in marketing. Specific topics vary from semester to semester. Previously offered as MKTG 4433. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Marketing

MKTG 4553 International Marketing
Prerequisites: MKTG 3213.
Description: The conceptual framework for marketing into and from foreign countries. The development of action-oriented strategies with emphasis on the uncontrollable factors that affect marketing decisions in an international setting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4613 Content Marketing Strategy
Prerequisites: MKTG 3213.
Description: At the intersection of development, creativity, and marketing, content marketing strategy is an art that requires an understanding of many different disciplines. Effective marketing content must be prepared strategically for a variety of different platforms: video, podcasting, online, mobile, social media, email marketing, and more. In Content Marketing Strategy, students learn the most common forms of content creation as well as the methods to drive website traffic and subsequent new business.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4623 Marketing Design Essentials
Description: Learn practical tools and tips for putting together promotional campaigns and creating promotional assets for a wide range of businesses. Students will learn how to apply marketing and branding theory with design and get hands-on experience in putting creative promotional designs into print and digital form. This class will cover software such as Photoshop, InDesign and Illustrator. Students will learn content creation tools and will create a promotional kit by the end of the semester. May not be used for degree credit with MKTG 5623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4683 Managerial Strategies in Marketing
Prerequisites: A minimum of twelve credit hours in marketing.
Description: Analysis of the marketing management decision process; marketing opportunity analysis, strategy development, planning and integration with corporate strategy. Students may not take both MKTG 4683 and MKTG 4693 for degree credit.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4693 Marketing Strategy and Customer-Employee Interactions
Prerequisites: A minimum of twelve credit hours in marketing.
Description: Analysis of the marketing management decision process with respect to the customer-employee interface; management of frontline employees; marketing opportunity analysis, strategy development, planning and integration with corporate strategy. Students may not take both MKTG 4683 and MKTG 4693 for degree credit.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4713 Advanced Sports Marketing
Prerequisites: MKTG 3713
Description: This course will focus on exploring advanced marketing theories related to topics such as ethics and social responsibility, international marketing, marketing research and information systems, data analytics, consumer behavior, product and logistics management, branding and brand management, sales management, promotions, social media and networking, destination marketing, and evaluating performance, while also covering pricing structures and strategies, experiential marketing, new digital marketing communications and technology, emotional intelligence, and exploring case studies.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Marketing

MKTG 4773 Services Marketing
Prerequisites: MKTG 3213.
Description: Conceptual and managerial tools for students who intend to be involved with the marketing of services. Characteristics of services, listening to customers, managing customer expectations, conceiving and creating service breakthroughs, service quality, positioning of services, managing demand and supply, creating a strategic service vision and designing a customer focused organization to create and retain customers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4813 Sports Sales and Revenue Generation
Description: The ability to generate sources of revenue is one of the most important skills for individuals working in the sports industry. This course provides an in-depth understanding of the many ways in which sports organizations generate revenue and will teach students the practical concepts they will need for success. The course provides a comprehensive approach that can be applied in professional sport, intercollegiate and interscholastic athletics, other amateur sports, and organizations in recreational settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4850 Applied Marketing Studies
Prerequisites: 12 credit hours of marketing and consent of instructor.
Description: Structured internship or field project with supporting academic study. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Marketing

MKTG 4973 New Product Development
Prerequisites: MKTG 3213, MKTG 4333.
Description: The elements involved in creating and marketing a successful new product. Qualitative and quantitative methods will analyze data collected from focus groups, including surveys to test a new product concept.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4983 Data Base Marketing
Prerequisites: MKTG 3213, MKTG 3323, MSIS 2103 or consent of instructor.
Description: An information-driven process to develop, test, implement, measure, and adopt customized marketing programs and strategies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 4993 Digital Marketing
Prerequisites: MKTG 3213.
Description: This course will give students a practical understanding of digital marketing, equipping them with the skills to perform key, digital marketing tasks such as SEO and pay-per-click advertising. At the end of the course, students will understand how a company can use the internet to promote its brand and market its products.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5133 Marketing Management
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Consideration at an advanced level of the major elements of marketing from the point of view of the marketing executive. Emphasis on problem solving and decision making; using an interdisciplinary approach. Development of an integrated, comprehensive marketing strategy..
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MKTG 5213 Services Marketing
Prerequisites: MKTG 5133.
Description: Services and services marketing with emphasis on services research and services management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5220 Seminar in Marketing
Prerequisites: MKTG 5133.
Description: Selected topics in marketing. Industrial marketing, product management, strategic marketing planning, international marketing, and services marketing. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Marketing

MKTG 5223 Entrepreneurial Marketing
Prerequisites: Admission to MBA program or instructor permission.
Description: Interplay of entrepreneurship concepts and marketing concepts, including the role of marketing in entrepreneurial ventures, and the role of entrepreneurship in a firm's marketing efforts. Emphasis is placed on how to address the significant changes taking place in markets and the modern marketing function. May not be used for degree credit with MKTG 4263 or EEE 4223. Same course as EEE 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5233 Global Competitive Environment
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Development of a global business strategy for the organization. Issues of highly diversified markets and business environments, global competition, financial markets, and complex organizational relationships. Same course as INTL 5233. Previously offered as MBA 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5243 Base SAS Programming for Database Marketing
Prerequisites: Admission in any graduate program.
Description: Learn basics of SAS programming, data manipulation in SAS environment and applications of SAS tools in the context of database marketing and business management. Class will help students prepare for Base SAS Programming and Advanced SAS Programming Certification Exam.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing

MKTG 5253 Advanced SAS Programming for Marketing Analytics
Prerequisites: MKTG 5243 or consent of instructor.
Description: Advanced SAS techniques to create more efficient and powerful SAS programs for analyzing marketing and business data. Extensive use of SQL, Macro along with Arrays, Hash objects and memory control within SAS environment, Helps students prepare for Advanced SAS Programming Certification Exam.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing

MKTG 5313 Marketing Research Methodology
Prerequisites: MKTG 5133.
Description: Research methodology applied to marketing problems. Measurement, survey research, experimentation, and statistical analysis of data.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5333 Marketing for Nonprofit Organizations
Description: Identify key challenges, and discuss how to apply fundamental marketing principles in order to solve these challenges within a wide range of nonprofit organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5443 Social Issues in Marketing Environment
Description: Social and Legislative considerations as they relate to the Marketplace. Develop an understanding of fundamental social marketing concepts and theories. Enhance your critical thinking and ethical analysis related to marketing practices. Obtain hands-on experience designing a social marketing plan. Strengthen problems solving, communications, and teamwork skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5500 Current Topics in Marketing Analytics
Prerequisites: Admission in any graduate program in business school or consent of instructor.
Description: Current topics in marketing analytics such as web analytics, marketing optimization analytics, high-performance analytics, visual analytics, marketing campaign analytics. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Marketing
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MKTG 5543 Social Media Strategies
Description: This class will focus on ways to build brand awareness and customer loyalty on a low budget. Topics covered will be social media, blogging, events, email marketing, analytics and more. May not be used for degree credit with MKTG 4543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5553 International Marketing Strategy
Prerequisites: MKTG 5133.
Description: An analysis of marketing in the global environment. Environmental effects on international marketing management and corporate strategy decisions..
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5613 Seminar in Consumer Behavior
Prerequisites: MKTG 5133 or consent of instructor.
Description: Psychological, sociological, and anthropological theories related to consumer decision processes. Special emphasis on current empirical research in consumer behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5623 Marketing Design Essentials
Description: Learn practical tools and tips for putting together promotional campaigns and creating promotional assets for a wide range of businesses. Students will learn how to apply marketing and branding theory with design and get hands-on experience in putting creative promotional designs into print and digital form. This class will cover software such as Photoshop, InDesign and Illustrator. Students will learn content creation tools and will create a promotional kit by the end of the semester. May not be used for degree credit with MKTG 4623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5633 The External Environment of Business
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Social, ethical, regulatory and political forces as they impact on the organization. Attention to organizational response to these forces through management policies and strategies. Previously offered as BADM 5613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5733 Introduction to Marketing Analytics
Prerequisites: Admission in MBA program or consent of instructor.
Description: Analytic tools including exploratory and graphical techniques, variable associations and correlations, regression, ANOVA and other related modeling techniques to improve managerial decision making. No degree credit for students with credit in BAN 5733 and MKTG 5983.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing

MKTG 5743 Advanced Marketing Analytics
Prerequisites: MKTG 5733 or consent of instructor.
Description: Advanced analytic tools such as neural networks, decision trees, classification and prediction models to generate deeper customer insights and to improve managerial decision making. No degree credit for students with credit in BAN 5743 and MKTG 5963.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing

MKTG 5883 Advanced Data Mining Applications
Prerequisites: MKTG 5963 or permission from instructor.
Description: Use advanced data mining tools such as clustering, Self Organizing maps (SOM) and Kohonen Networks, two-stage models, customer attrition and churn models via survival analysis, credit scoring models, etc. In the context of common applications in business management. No degree credit for students with credit in BAN 5753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5963 Data Mining and Customer Relationship Management Applications
Prerequisites: MKTG 5983 or consent of MBA, MIS/MSIS, MSTM director or assistant director or instructor.
Description: Data mining and turning business data into actionable information. Use of various data mining tools such as neural networks, decision trees, classification and prediction algorithms, in the context of most common applications in business-sales, marketing, and customer relationship management (CRM). Use of state-of-the-art industrial strength data mining software to analyze real-world data and make strategic recommendations for managerial actions. No degree credit for students with credit in BAN 5743 and MKTG 5743.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing

MKTG 5973 New Product Development
Prerequisites: Acceptance into the MBA program or consent of the MBA director.
Description: Elements involved in creating and selling a successful new product in a complex environment, including internal organizational and external environmental influences..
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 5983 Data Base Marketing
Prerequisites: Consent of MBA, MIS/MSIS, MSTM director or assistant director or instructor.
Description: Learn how to manage data, and analyze data using statistical tools such as multiple regression, ANOVA, logistic regression, etc., and frameworks/models commonly used in database marketing such as RFM, LTV, etc. An overview of basic probability concepts and statistical sampling techniques including hypothesis testing (t-tests), contingency tables and Chi-square analysis will be provided. No degree credit for students with credit in BAN 5733 and MKTG 5733.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Marketing

MKTG 5993 Digital Business Strategy
Prerequisites: Consent of MBA, or MIS/AIS or MSTM director or instructor.
Description: Businesses employment of digital technologies to craft a superior and unique value proposition for its customers and strategic partners.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Marketing

MKTG 6100 Advanced Seminar in Marketing
Prerequisites: Consent of instructor and doctoral student standing.
Description: Specialized topics in marketing for doctoral students. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Marketing

MKTG 6323 Seminar in Advanced Consumer Behavior
Prerequisites: MKTG 5133 or consent of the instructor.
Description: An interdisciplinary course examining empirical and theoretical studies of the factors that influence the acquisition, consumption, and disposition of goods, services, and ideas. Analysis of the psychological, sociological, anthropological, demographic, and regulatory forces that impact consumers. Examination of research methodologies employed to conduct empirical studies of consumer behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 6413 Advanced Marketing Research
Prerequisites: MKTG 5983 or MKTG 5963 or consent of MBA director or MIS director or instructor.
Description: Introduction to the latest empirical marketing research and advanced analytics techniques such as MANOVA, Confirmatory Factor Analysis, Cluster Analysis, Scaling Techniques, Conjoint Analysis and Structural Equation Models. No degree credit for students with credit in BAN 5763.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 6513 Seminar in Marketing Theory
Prerequisites: MKTG 5133 or consent of instructor.
Description: Development of an evaluation of marketing theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 6683 Seminar in Marketing Strategy
Prerequisites: MKTG 5133 or consent of instructor.
Description: Examination of a broad range of marketing management topics from a strategic perspective. Understanding of content, theory and research methods involved in the development of strategic marketing knowledge.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

MKTG 6913 Measurement and Experimental Design
Description: An analysis of measurement issues from both psychometric and marketing perspectives. Scale construction and validation. The design, analysis, and evaluation of marketing experiments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Marketing

Mass Communications (MC)

MC 1143 Media in a Diverse Society (DS)
Description: A study of the media and their effect on our culture, with an emphasis on the media's role in racial, gender and sexual orientation issues in the United States. By analyzing the mass media, we learn to interpret the consequences of the stories they tell. An introductory survey course for majors and non-majors. Previously offered as JB 1143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm
General Education and other Course Attributes: Diversity, Society & Human Behavior
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

MC 1163 Citizen Journalism Collective
Description: This course introduces students to media literacy, journalism and design through a focus on community news. Students will apply experiential methods and techniques from creative writing and the visual arts to produce engaging, informative news stories. Students will research their communities' information needs then produce multimedia stories to address those needs. Qualifying stories will be published in professional and student outlets.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 2003 Mass Media Style and Structure
Prerequisites: ENGL 1213 or ENGL 1223 or ENGL 1413 with grade of "C" or higher, 24 credit hours earned and departmental majors only.
Description: Teaches basic writing skills vital to any career in mass communication. Emphasizes language skills with a focus on the rules of grammar and the meaning of words. Also teaches the basic strategies of information gathering, including how to glean accurate and useful background information from traditional and online sources. Introduces students to the fundamental writing styles and objectives required to convey information in different media. Previously offered as JB 2003, JB 1393, and JM 1123.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm
Additional Fees: MC 2003 AP Stylebook fee of $5.30 applies.

MC 2023 Digital Media Essentials
Prerequisites: ENGL 1213 or ENGL 1223 or ENGL 1413 with a grade of "C" or better, 24 credit hours earned and departmental majors only.
Description: Introduces students to electronic communication with a series of hands-on projects to develop their skills with basic photography, videography, podcasting and Web page development. Compares the various media platforms and teaches students visual grammar. Students create slide-shows and podcasts, learn to edit video, and develop Web pages using content created in class.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Media & Strategic Comm
Additional Fees: MC 2023 AP Stylebook fee of $5.30 applies.

MC 2143 Media and Information Literacy (S)
Description: Students will be equipped with the competency, knowledge and skills to navigate, analyze, evaluate, and create media and digital content responsibly. Topics include the historical context, principles, and social implications of media, from traditional print media to contemporary digital/social media as well as critical thinking about the influence and impact of media on society, democracy, and personal decision-making. Issues will include misinformation, disinformation, digital citizenship, media ownership, representation, and bias in media.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm
General Education and other Course Attributes: Society & Human Behavior

MC 2360 Seminar in Mass Media
Description: A seminar-style course on varying media topics taught by faculty members on a rotating basis.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 2773 Censorship
Description: A critical examination of historical and contemporary occurrences of censorship from legal, philosophical, political, religious and sociological perspectives. We will explore the definition of censorship, the common elements found in all forms of censorship, the rationalizations and justifications for censorship, and the consequences and unintended results of censorship. We also critically examine relevant First Amendment theories, principles and applications. Previously offered as JB 4773, MMJ 2773 and MMJ 4773. May not be used for degree credit with MC 5773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 3113 Introduction to Media Effects
Description: Mass media's potential to influence audience behavior is a subject that has long fascinated scholars and the general public. Aside from working & sleeping, individuals in the U.S. spend more time consuming media than any other activity. This course introduces media effects, and offers critical analysis methods to better understand the process and effects of the mediated message. A variety of media theories will be examined to understand how media can affect attitudes and behaviors on an individual and societal level. The theories will be used to examine a variety of different types of content, including media violence, portrayals of race and gender, entertainment, politics, strategic communication, and sport.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 3173 History of Mass Communication (H)
Description: Growth and development of mass communication systems in America, with emphasis upon the economic, social and political interaction of the media. Previously offered as JB 3173.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm
General Education and other Course Attributes: Human Heritage & Cultures

MC 3360 Current Topics in Mass Communication
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or better in each; and pass proficiency review.
Description: Examination of timely topics and issues in contemporary media. May be repeated with different topics.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 4043 Media Study Abroad (G)
Description: Participation in an international experience sponsored by the School of Media and Strategic Communications. This will typically involve the integrated study of a country or region regarding relevant cultural, commercial, historical, technological, political, and economic issues especially as those areas related to media and communication. May not be used for degree credit with MC 5040 in same semester with same subtitle.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm
General Education and other Course Attributes: International Dimension

MC 4143 Ethics and Issues in Mass Communications
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or better in both; and pass proficiency review.
Description: Students examine classical theories of ethical behavior and their relevancy to professional communicators. Students learn to analyze various moral viewpoints, so they can discern a justifiable system of ethical decision-making. Students apply ethical reasoning and professional codes of conduct to scenarios to determine the most ethical action to take.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 4153 International Mass Communication
Description: In today's interconnected world, media shapes our understanding of global events, cultures, and societies. Course examines comparative analysis of media systems, news production, entertainment formats, cultural representations, imbalances in international information flow, debates over media imperialism, and the interplay between local identities and global forces. Current issues will help identify the roles international media play in shaping values, ideology, and power dynamics within varied international contexts. No credit for students with credit in MC 5253. Previously offered as JB 4253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 4163 Mass Communication Law
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or better in both; and pass proficiency review.
Description: Major principles of media law by examining the important court decisions, statutory and regulatory enactments in each area of communication law. Relevant constitutional freedoms and legal issues affecting professional communicators and all participants in a self-governing society. Practice applying the law and precedents to specific situations to determine if potential legal problems exist. No credit for students with credit in MC 5163. Previously offered as JB 4163 and JB 3163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 4360 Advanced Topics in Mass Communications
Prerequisites: MMJ 3263, SC 3353, or SPM 3813 with a grade of "C" or higher; and pass proficiency review.
Description: Independent study and project development to fit the student's field of study. Previously offered as JB 4360. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 4733 Responsibility in Mass Communication
Prerequisites: MC 2003 with a grade of "C" or better; and pass proficiency review.
Description: Interaction between mass media and society with emphasis upon the communicator's ethics and responsibilities. Meets with MC 5733. No credit for students with credit in MC 5733. Previously offered as JB 4733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 4753 Media and Elections
Description: Examination of media's role in the political process with primary emphasis on public affairs, political news, public relations and campaign advertising in traditional and social media spaces. No credit for students with credit in MC 5753. Previously offered as JB 4753 and MMJ 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 4993 Senior Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a senior faculty member, with second faculty reader and oral examination. Required for graduation with departmental honors in the School of Journalism and Broadcasting. Previously offered as JB 4993.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm
General Education and other Course Attributes: Honors Credit

MC 5000 Thesis
Description: For mass communication graduate students who are candidates for the master's degree. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5001 Capstone Project Prep
Prerequisites: MC 5113, MC 5333, and MC 5651 each with a B or better; and instructor permission.
Description: This course prepares mass communication graduate students for the degree completion option of Creative Component. Students will develop a proposal for their creative project, including preparing an introduction and rationale for the project, a review of relevant trade and scholarly literature, a methodology section outlining project execution, a timeline for project completion and an evaluation criteria for the project.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5010 Capstone Creative Project
Prerequisites: "B" or better in MC 5001, 5113, MC 5333, and MC 5651 and instructor permission.
Description: Capstone research project or creative activity for a mass communication graduate student. Offered for variable credit, 1-3 credit hours, maximum of 3 hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5011 Experience Report
Prerequisites: Instructor permission and MC 5020 (6 hours) or MC 5040 (6 hours).
Description: The Experience Report is a non-thesis, degree completion option for the Study Abroad or Practicum graduation candidates.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5020 Practicum in Mass Communication
Prerequisites: MC 5651, MC 5113 and MC 5333 with minimum grade of "B" in each; instructor permission.
Description: This class serves as a degree completion option for graduate students. It provides students with hands-on, real-world experience through supervised fieldwork in professional media and communication settings. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5030 Independent Study in Mass Communication
Prerequisites: Consent of instructor.
Description: Independent study, directed readings or project development in mass communications to fit the student's academic and professional interests. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5040 Media International Experience
Prerequisites: Consent of instructor.
Description: Participation in either an international experience sponsored by the School of Media and Strategic Communications (SMSC) or a research or directed reading project in conjunction with a study abroad experience. An SMSC international offering will typically involve the integrated study of a country or region regarding relevant cultural, commercial, historical, technological, political, and economic issues especially as those areas related to media and communication. The project option would be a student-initiated and student-designed with a faculty adviser or mentor input and guidance. May not be used for degree credit with MC 4043 in same semester with same subtitle. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5113 Methods of Research in Mass Communication
Description: Principles and techniques of research; research planning, design and measurement in mass communication.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5143 Diversity In Sports Media
Description: This course examines sports media content, framing, personnel, and audiences in relation to diverse groups. Primary emphases are placed on race and ethnicity, gender, sex, LGBT, national identity, and disability. Sports media coverage of each group is examined from a historical perspective up through the 21st Century convergence of broadcast, online, and print journalism. Particular focus is placed on diversity among sport media gatekeepers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5163 Mass Communication Law
Prerequisites: Graduate standing.
Description: Major principles of media law by examining the important court decisions, statutory and regulatory enactments in each area of communication law. Relevant constitutional freedoms and legal issues affecting professional communicators and all participants in a self-governing society. Practice applying the law and precedents to specific situations to determine if potential legal problems exist. Meets with MC 4163. No credit for students with credit in MC 4163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5183 Brand Strategy
Prerequisites: Graduate Standing
Description: This course explores the strategic management of brands in a dynamic digital landscape, covering brand identity, positioning, architecture, portfolio strategy, and brand growth. Students will engage in hands-on projects, blending analytical thinking with creative development. The course focuses on real-world applications, culminating in a semester-long brand strategy project.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5223 Mass Communication Research Analysis and Interpretation
Prerequisites: MC 5113.
Description: Single- and multi-variate analysis, interpretation and reporting of mass communication research data. Use of computers in research analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5253 International Mass Communication
Description: Examination of the nature and flow of news and information within and among nations, states, and societies from a theoretical vantage point grounded in region-specific realities. The political, economic, social, cultural and historical forces determining media practice in a global environment. No credit for students with credit in MC 4153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5283 Citizen Branding
Prerequisites: Graduate standing.
Description: The course is focused on promoting citizen engagement and community building in a digital era. It explores consumption of networked political campaigns, corporate and national identity branding, and participation in the social media marketplace. It examines the effect of media on community deliberation. This course will provide the tools to increase meaningful community engagement in ways that will transform our communities into more vibrant and interactive places.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5323 Nation Branding
Prerequisites: Graduate standing.
Description: Nation branding is defined for this course as the strategic act of shaping a country's reputation and country image through the use of branding techniques. This course will explore America's image abroad and attempt to understand the recent rise of anti-Americanism, as well as look at nation branding in other countries. May not be used for degree credit with GS 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5333 Media Theory
Prerequisites: Graduate standing.
Description: Mediating factors that affect interaction of ingredients in the communications process, and how these factors can affect the fidelity of information conveyed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5383 Media Relations
Prerequisites: Graduate standing.
Description: Strategies for dealing with the news media. Students will gain hands-on experience in conducting media news conferences, pitching story ideas and preparing themselves and others for dealing with news media interviews. Meets with SC 4383. No credit for students with credit in SC 4383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5443 Sports Branding
Prerequisites: Graduate Standing.
Description: Introduction to the multibillion-dollar industry of sports branding and sponsorship from the viewpoint of the team, the brand, and other entities involved. Sports branding creates and delivers brand content to fans to bolster engagement and loyalty towards the generation of revenue. Course covers the history of sports branding, the broader sport and eSports ecosystems, team and individual athlete branding, sponsorship, and the role of globalization and virtual-based Consumer technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5483 Nonprofit Branding
Prerequisites: Graduate Standing.
Description: This course explores the role of strategic communications for nonprofit organizations. It will provide students with an in-depth understanding of how communication theories can be applied to build organizational brand, foster commitment to organization's mission, increase trust, create ambassadors, strengthens impact, and create lasting social change.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5503 Graduate Internship in Media
Prerequisites: MC 5651, MC 5113 and MC 5333 with minimum grade of "B" in each; instructor permission.
Description: This course provides graduate students with professional learning experience through structured internship placement in a media-focused role. Students apply academic theory to real-world practice while developing industry skills and building their portfolios. The course bridges classroom knowledge with professional experience in media operations, fostering career-advancing industry connections and enhancing job market competitiveness.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5520 Specialized Strategic Communications Applications
Prerequisites: One semester of graduate course work and consent of instructor.
Description: Professional strategic communications at an advanced level. Strategic communications study of non-profit, corporate, agency, international and other specialized applications. Course content varies by semester. No credit for students with credit in SC 4520 during the same semester or with the same subtitle. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5540 Specialized Multimedia Journalism Applications
Prerequisites: Graduate standing.
Description: Professional journalism at an advanced level. Special topics in areas such as announcing, performance; political, business, and investigative reporting; advanced layout and design or audio production; feature, column and editorial writing. Course content varies by semester. Meets with MMJ 4540. No credit for students in MMJ 4540 during the same semester or with the same subtitle. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5560 Specialized Sports Media Applications
Prerequisites: Graduate standing.
Description: Professional sports media at an advanced level. Special topics in areas such as sports media production, announcing, performance; sports feature, column and editorial writing. Course content varies by semester. Meets with SPM 4560. No credit for students in SPM 4560 during same semester or with same subtitle. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5603 Integrated Marketing Communication
Prerequisites: Graduate standing. Previous Mass Communication or Marketing coursework.
Description: Advanced exploration of the strategic planning and implementation of Integrated Marketing Communication campaigns. Uses case studies, projects, and industry examples to emphasize the importance of coordinating and combining diverse traditional and digital marketing tools and channels (advertising, public relations, direct marketing, and sales promotion) to deliver clear, consistent, high-impact messages that resonate with target audiences. Course also delves into contemporary theories, models, and tools that inform decision-making in promotional communication strategies. No credit for SC 4603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5613 Storytellers Studio
Prerequisites: Graduate standing.
Description: This is a graduate seminar designed to provide an understanding of the theory and practice of mass media. Through readings, lectures, multi-media presentations and guests who are industry experts, we explore the main media institutions and how they create, exhibit, and disseminate their products. The course also explores how diverse audiences and users select, use and react to media content. Special attention is paid to the audience/medium relationship, improving media literacy and a broad understanding of media ethics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5651 Introduction to Graduate Study in Mass Communications
Prerequisites: Graduate standing.
Description: Orientation to skills necessary for successful completion of graduate work. Training in library and archival research, academic writing and preparation of research reports, familiarization with theoretical concepts and issues associated with mass communication. Required of all mass communication MS candidates, and prerequisite to MS candidates enrolling in mass communication seminars. Previously offered as MC 5653.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5693 Media Analytics
Prerequisites: Graduate Standing
Description: Analytic tools and computational methods for journalism and strategic communication, including data collection and processing, multimedia content analysis, web-based data acquisition, text mining and natural language processing, and statistical analysis techniques for hypothesis testing and modeling. Applications focus on media research, audience analysis, and communication effectiveness measurement. Programming concepts and software tools will be introduced as needed. No prior technical experience required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5733 Responsibility in Mass Communication
Prerequisites: Graduate standing.
Description: Interaction between mass media and society with emphasis upon the communicator's ethics and responsibilities. Meets with MC 4733. No credit for students with credit in MC 4733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5753 Media And Elections
Prerequisites: Graduate standing.
Description: Examination of media's role in the political process with primary emphasis on public affairs, political news, public relations and campaign advertising in traditional and social media spaces. May not be used for degree credit with MMJ 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5770 Seminar in Communication Media
Prerequisites: Graduate standing.
Description: International communication, media history, legal research, new technology, women and the media, television and children, industrial television, and communication research. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MC 5773 Censorship
Prerequisites: Graduate standing.
Description: Critical examination of historical and contemporary occurrences of censorship from legal, philosophical, political, religious and sociological perspectives. The course will explore the definition of censorship, the common elements found in all forms of censorship, the rationalizations and justifications for censorship, and the consequences and unintended results of censorship. No credit for students with credit in MMJ 2773 or MMJ 4773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5843 Sport Fanship
Prerequisites: Graduate Standing.
Description: An in-depth examination of modern sport fans and their relationship with the sports media industry. The class will define sport fanship in today's context, cover the many causes of fanship, and explore its social and psychological consequences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5883 Media Management
Prerequisites: Graduate Standing.
Description: The focus of this course is on an integrated approach to the management in an organization, particularly grounded in organizational theory. Management concerns in mass communication practice, including public relations, brand management, digital production, multimedia journalism and sports media. Different emphases offered according to student demand or need.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5933 Theories of Persuasion
Prerequisites: Graduate standing.
Description: In order to extend our understanding of Strategic Communication, it is important to study the large body of scientific research dealing with persuasion and persuasive communication. This is not a course on how to be a better persuader, but instead a study of the theories of persuasion. However by exploring the academic literature on persuasion, many strategies can be learned and used to not only make us better communicators, but also to help us resist persuasive attempts that we may encounter as citizens and consumers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MC 5953 Strategic Health Communications Campaigns
Prerequisites: Graduate standing.
Description: The course will focus on theoretical approaches to health message design and the most effective and strategic use of traditional and new media outlets. Students also will review and discuss examples of past and current health communication campaigns in the United States and around the world. Integrating theory and practice, students will apply these concepts to design strategic communication campaigns for area health agencies and organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

Master of Athletic Training (MAT)

MAT 5000 Thesis Research & Seminar
Prerequisites: Admission to the Master of Athletic Training.
Description: Research, thesis, and seminar requirement culminating with a Master of Athletic Training degree. Offered for valuable credit, 1-6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

MAT 5103 Emergency Management in Athletic Healthcare
Prerequisites: Admission into the Entry Level Masters degree Athletic Training Education Program.
Description: Development of essential skills and competencies necessary to manage emergency situations. Previously offered as HHP 5103.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health

MAT 5122 Clinical Anatomy for Athletic Training
Prerequisites: Admission in the Master of Athletic Training program.
Description: Gross structures of the human body using a regional approach including topographic and functional anatomy, and clinical correlations as appropriate for athletic trainers and allied healthcare professionals. Descriptive basis for understanding human structure and function encountered in professional practice.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 3 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health

MAT 5183 Injury Prevention and Management
Prerequisites: Admission into the Early Level Masters degree Athletic Training Education Program.
Description: Introduction to injury etiology, appropriate injury prevention and the administration of subsequent medical care. Based in didactic theory and practical experience regarding many aspects of Athletic Healthcare. Previously offered as HHP 5184.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health

MAT 5202 Athletic Training Practicum I
Prerequisites: Admission into the Entry Level Masters degree Athletic Training Education Program.
Description: Supervised clinical experiences in athletic training emphasizing concepts in injury prevention, acute care injury management. Previously offered as HHP 5201.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

MAT 5223 Therapeutic Modalities
Prerequisites: Admission into the Entry Level Masters degree Athletic Training Education Program, and HHP 5122.
Description: Discussion and application of common electronic and physiologic devices used in the treatment of acute and chronic injuries to the musculoskeletal systems. This course is designed to introduce the student to various therapeutic agents used in the treatment of injury through problem based learning. Previously offered as HHP 5222.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health
Additional Fees: MAT Course Lab fee of $125 applies.

MAT 5233 Clinical Evaluation and Diagnosis of the Lower Extremity
Prerequisites: Admission into the Entry Level Masters degree Athletic Training Education Program.
Description: Contemporary knowledge and skills related to evidence based practice in the recognition, diagnosis, and appropriate medical referral of injuries to the hip, pelvis, and lower extremity. Previously offered as HHP 5234.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health
Additional Fees: MAT Course Lab fee of $125 applies.

MAT 5243 Therapeutic Exercise of the Lower Extremity
Prerequisites: Admission into the Entry Level Masters degree Athletic Training Education Program.
Description: Scientific methods used in therapeutic exercise and rehabilitation of lower extremity injuries. Investigation of mechanisms of injury, anatomical structures involved and methodological approach in designing rehabilitative programs. Previously offered as HHP 5244.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health
Additional Fees: MAT Course Lab fee of $125 applies.

MAT 5302 Athletic Training Practicum II
Prerequisites: MAT 5202, Admission into the Master of Athletic Training Program.
Description: Interactive and supervised clinical experiences in athletic training emphasizing diagnosis, treatment and rehabilitation of injuries to the lower extremity. Previously offered as HHP 5301.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

MAT 5315 Clinical Evaluation, Diagnosis, Pathology and Pharmacology of Non-Orthopedic Medical Conditions
Prerequisites: Admission to the Master of Athletic Training Program.
Description: To present the student with specific pathologies, medical conditions and possible avenues for treatment of nonorthopedic conditions. This will include the pathology and pharmacology of these pathologies. Based in medical theory and practical outcomes, this course will prepare students to evaluate, treat and refer to proper medical professionals. Previously offered as MAT 5313 and HHP 5314.
Credit hours: 5
Contact hours: Lecture: 4 Lab: 2 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health

MAT 5333 Clinical Evaluation and Diagnosis of the Upper Extremity
Prerequisites: HHP 5234.
Description: Advanced knowledge and skills related to evidence based practice in the recognition, diagnosis and appropriate medical referral of injuries to the upper extremities. Previously offered as HHP 5334.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health

MAT 5343 Therapeutic Exercise of the Upper Extremity
Prerequisites: Admission in the Master of Athletic Training Program.
Description: Evidence based practices used in therapeutic exercise and rehabilitation of upper extremity injuries. Investigation of mechanisms of injury, anatomical structures involved and methodological approach in designing rehabilitative programs. Previously offered as HHP 5344.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health

MAT 5402 Athletic Training Practicum III
Prerequisites: HHP 5301 Athletic Training Practicum II.
Description: Interactive and supervised clinical experiences in athletic training emphasizing diagnosis, treatment and rehabilitation of injuries to the upper extremity. Previously offered as HHP 5401.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

MAT 5412 Radiography Evaluation and Assessment
Prerequisites: Admission into the Entry Level Masters degree Athletic Training Education Program.
Description: To introduce the student to the fundamental principles, equipment and common methods and procedures of radiography. Previously offered as HHP 5412.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5443 Clinical Diagnosis, Evaluation, and Therapeutic Exercise of the Head and Spine
Prerequisites: Admission to the Master of Athletic Training Program.
Description: Advanced knowledge and skills related to the recognition, diagnosis and appropriate medical referral of injuries to the lumbar, thoracic and cervical spine and head. Scientific methods used in therapeutic exercise and rehabilitation of head and spine injuries. Previously offered as HHP 5444.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health
Additional Fees: MAT Course Lab fee of $125 applies.

MAT 5481 Advanced Athletic Training Techniques
Prerequisites: Admission to the Master of Athletic Training Program.
Description: To present the student with advanced manual therapy and athletic training hands-on techniques. Previously offered as MAT 5483 and HHP 5483.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5502 Athletic Training Practicum IV
Prerequisites: MAT 5402, Admission in the Master of Athletic Training Program.
Description: Interactive and supervised clinical experiences in athletic training emphasizing diagnosis, treatment and rehabilitation of injuries to the head and spine and general medical conditions. Previously offered as HHP 5501.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

MAT 5553 Research Evaluation and Application
Prerequisites: Admission into the Entry Level Masters degree Athletic Training Education Program.
Description: Discuss the importance of conducting research in athletic training and the healthcare professions. Emphasis is placed on research design, ethics, collection of data, and the dissemination of results. Previously offered as HHP 5533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5573 Athletic Healthcare Administration
Prerequisites: Admission into the Entry Level Masters degree Athletic Training Education Program.
Description: The administration and organization of athletic healthcare programs including planning and implementation, certification procedures, code of professional practice, safety standards and resource management. Previously offered as HHP 5573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5583 Psychosocial Strategies in Athletic Healthcare
Prerequisites: Admission into the Entry Level Masters degree Athletic Training Education Program.
Description: Development of psychosocial strategies and referral competencies set by the National Athletic Trainers Association Board of Certification. Previously offered as HHP 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5602 Athletic Training Practicum V
Prerequisites: MAT 5502, Admission in the Master of Athletic Training Program.
Description: Interactive and supervised clinical experiences in athletic training emphasizing evidence based practices and administrative responsibilities. Previously offered as HHP 5601.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

MAT 5712 Clinical Diagnosis and Therapeutic Interventions for the Lower Extremity
Description: This course will provide the learner with advanced knowledge, supporting evidence, and contemporary expertise for injuries and pathologies of the lower extremity. This will include orthopedic evaluation and therapeutic interventions foundations.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5722 Clinical Diagnosis and Therapeutic Interventions for the Upper Extremity
Description: This course will provide the learner with advanced knowledge, supporting evidence, and contemporary expertise for injuries and pathologies of the upper extremity. This will include orthopedic evaluation and therapeutic interventions foundations.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5732 Clinical Diagnosis and Therapeutic Interventions for the Head and Spine
Prerequisites: Admittance Into the Advanced Sports Medicine Concepts Graduate Certificate Program.
Description: This course will provide the learner with advanced knowledge, supporting evidence, and contemporary expertise for injuries and pathologies of the head and spine. This will include orthopedic evaluation and therapeutic Interventions foundations.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5742 Clinical Diagnosis and Therapeutic Interventions for Non-Orthopedic Injuries
Description: This course will provide the learner with advanced knowledge, supporting evidence, and contemporary expertise for non-orthopedic injuries and pathologies. This will include evaluation and therapeutic interventions foundations.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5752 Emergency Care in Sports Medicine
Description: This course will provide the learner with advanced knowledge, supporting evidence, and contemporary expertise for emergencies that occur in the sports medicine setting and refine current clinicians' emergency management skills within the context of sports medicine.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

MAT 5762 Mental Health in Sports Medicine
Description: This course will provide the learner with advanced knowledge, supporting evidence, and contemporary expertise for mental health conditions that occur in the sports medicine setting. It will also refine current clinicians' mental health management referral and intervention skills within the context of sports medicine,
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

Master of Business Admin (MBA)

MBA 5010 Independent Study
Prerequisites: Admission to MBA program or consent of MBA director.
Description: Investigation of advanced research topics or directed study under the supervision of a faculty member. Consent of MBA Graduate Studies Committee required. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin

MBA 5100 Professional Development
Prerequisites: Admission to MBA program or consent of MBA director.
Description: Career and professional development of MBA students. A blend of guest speakers, projects, and exercises used to better prepare students for advanced business careers. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MBA 5192 Managing Operations and Decision Processes
Prerequisites: MBA 5172.
Description: Study of concepts of management of production and service operations. Contemporary manufacturing technologies and application of quantitative techniques. Development of analytical skills required to conduct detailed investigations of real-world systems.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

MBA 5261 Legal Issues in Business
Prerequisites: Admission to MBA program or consent of MBA director.
Description: Analysis of the basic concepts of public and private law related to business decisions. Overview of the laws affecting private business relationships including employment law, agency laws, and various forms of business organizations.
Credit hours: 1
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

MBA 5300 Current Business Topics
Prerequisites: Admission to the MBA program or consent of the director.
Description: Examination of selected topics representing the most current academic and business concepts. Previously offered as MBA 5313. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MBA 5310 Integrative Decision-Making II: Crossing Organizational Boundaries
Prerequisites: Consent of MBA director and completion of minimum of 24 MBA credit hours.
Description: Identification and analysis of environmental forces affecting an organization's ability to compete and survive. Interaction among all corporate functional units. Development of a comprehensive, integrated plan of action for the firm. Offered for variable credit, 2-6 credit hours, maximum of 6 credit hours.
Credit hours: 2-6
Contact hours: Lecture: 3-9 Contact: 3-9
Levels: Graduate
Schedule types: Lecture
Department/School: Dean of Business Admin

MBA 5400 Business Practicum
Prerequisites: Consent of MBA director and completion of 18 MBA credit hours.
Description: Application of knowledge and skills developed in MBA functional courses in an organizational environment. Integration of functional concepts, allowing students to experience the adaptation of concepts to fit organizational reality, and assisting students in understanding ways in which their academic training can help organizations. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MBA 5500 Interdisciplinary Inquiry in Business Administration
Prerequisites: Admission to a SSB graduate program or consent of MBA director.
Description: Investigation of various business problems using an interdisciplinary approach. Courses team taught to ensure problems viewed from varying functional perspectives. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin
Additional Fees: Business Graduate Program fee of $6 per credit hour applies.

MBA 5990 MBA Applied Business Report
Prerequisites: Admission to MBA program or consent of MBA director.
Description: Independent investigation of a business problem under the direction of a supervising professor. Previously offered as BADM 5990. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Dean of Business Admin

Master of Public Health (MPH)

MPH 5000 Master's Thesis
Description: Independent research in public health for MPH degree. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Professional Studies

MPH 5010 Independent Study in Public Health
Description: Limited opportunities to enroll for coursework on an independent study basis are available. Independent study opportunities in Public Health will be specific to the interest of the faculty member and the student, and not currently offered through other required or elective courses. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Professional Studies

MPH 5023 Introduction to One Health
Description: Students will be exposed to relevant areas of the One Health paradigm with special emphasis on public health, animal health, and global sustainability issues. Global health burden, determinants of health, strategies towards promoting health and applications towards a sustainable approach for the health of humans, animals and the environment will be covered.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5030 Master of Public Health Practicum
Description: Supervised practicum experience in public health for MPH degree. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Professional Studies

MPH 5103 Grant Writing in Public Health
Description: This course will present principles and skills needed to write competitive public health program and research grants, prepare budgets, and understanding the peer review process. Students will write an HRSA, CDC, SAMSHA, or NIH type grant proposal.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5133 Environmental Health
Description: Examination of health issues, etiology of disease, and control and prevention of major environmental health problems in industrialized and developing countries. Same course as HLTH 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5203 Evidence-Based Approaches to Public Health
Description: This class introduces students to concepts and methods of quantitative, biostatistical analysis and qualitative analysis. Topics include selecting appropriate data collection methods, data analysis including statistical packages. This course will cover qualitative methods and analysis; quantitative methods include descriptive statistics, standard probability distributions, sampling distributions, confidence interval estimation, hypothesis testing, power and sample size estimation, parametric and non-parametric methods for analyzing continuous or categorical data, and simple linear regression.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5213 Biostatistical Literacy
Description: This course focuses on biostatistical literacy, or the ability to read and comprehend biostatistics in public health literature. This course will not include calculation of statistics and will offer no formal training in statistical software or programming, but will include fundamental concepts of study design, descriptive statistics, hypothesis testing, confidence intervals, odds rations, relative risks, adjusted models in multiple linear, logistic, and proportional hazards regression, and survival analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5221 Epidemiology and Evidence-Based Medicine
Prerequisites: Graduate standing and consent of instructor.
Description: Principles and uses of evidence-based practice of veterinary medicine; comprehension and utilization of scientific research; interpretation of basic concepts of observational study of disease. Same course as CBSC 5221 and VMED 7221.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5323 General Epidemiology
Description: Examination of epidemiological theory and its methodological application to public health. Same course as HLTH 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5343 Clinical Epidemiology
Description: This course covers the most prevalent chronic diseases and their risk factors. Chronic diseases drive up US healthcare costs, making our care among the most expensive in the developed world.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5363 Social Epidemiology
Description: Social epidemiology includes considerations for how social interactions affect human health. Social epidemiologists are concerned about investigating the social determinants are concerned about investigating the social determinants of health and consider population-level rather than individual-level factors and outcomes. Social processes including social networks, social support, social capital, social cohesion, and other ways of understanding ecological factors will be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5413 Food Safety and Public Health
Prerequisites: Graduate standing and consent of instructor.
Description: Introduction to public health and diseases transmissible to humans. Potential human health hazards in foods of animal origin and principles of safe food production, processing, handling and inspection, including pathogen reduction and HACCP regulations. Same course as VBSC 5413 and VMED 7413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5433 Public Mental Health
Description: The purpose of this class is to introduce students to the social, economic, and public health aspects of mental illness. Students will be introduced to the epidemiology of different mental disorders. They will then be introduced to the different mental disorders from a population level perspective. Students will be introduced to special topics in mental health including legal issues, suicide, and violence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5443 Aspects of Addiction
Description: The purpose of this class is to introduce students to the social aspects of the disease of addiction. Students will be introduced to the different substances of abuse. They will examine social, economic and public health consequences of addiction. They will further be introduced to treatment models and resources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5453 Cultural Issues in Health
Description: Examination of ways in which culture affects health and health care including perceptions of health, diseases, treatments, and the values associated with these factors. The need for cultural sensitivity in health care is emphasized.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5463 Health Media & Communication
Description: This course examines how public health environments are understood and experienced, popular tactics for communicating and contesting public health information, the utilization of the media and communication strategies to combat diseases and promote health, and the impact of media representation and popular culture on understandings of disease and health.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5513 Fundamentals of Health Budgeting and Financial Management
Description: This course will offer a current approach to the fundamentals of budgeting and financial management, with an emphasis on non-profit and health care organizations, in particularly the community health sector.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5523 Cannabis through a Public Health Lens
Description: In this course, students will learn the history, research, policy, legalization, economic issues, current evidence-based health effects, and social consequences of cannabis use through a public health lens.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5533 Aging and Public Health
Description: This course examines the biological, psychological, and social aspects of aging; investigates public health issues created by population aging; and explores public health responses to effectively serve older populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5543 Leadership, Policy, and Ethics in Public Health
Description: This course investigates major theories, models and competences of leadership, current public health issues and challenges, ethical issues, and approaches to enhance health outcomes at the individual, team, community, and policy level.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5653 Foundations of Public Health Education and Promotion
Description: Exploration of key concepts, philosophies, ethical principles, historical events, theories/models, and responsibilities and competencies of health education and promotion of professionals. Same course as HLTH 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5683 Health Behavior Theory and Practice for Public Health
Description: Theories and concepts of health behavior change and exploration of the application of theories to public health programs. Same course as HLTH 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5973 Designing Public Health Programs
Description: Application of program design principles, including needs assessment, theoretical application, program planning and marketing. Same course as HLTH 5973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5983 Implementation and Evaluation of Public Health Programs
Description: Application of program implementation and evaluation, including evaluation design. Same course as HLTH 5983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

MPH 5990 Emerging Issues in Public Health
Description: Graduate level analysis of emerging issues and methodologies in public health not covered in other departmental offerings. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Professional Studies

Materials Sci & Engineering (MSE)

MSE 5000 Master's Thesis
Prerequisites: Graduate standing and permission of instructor.
Description: Students will be performing thesis research under the guidance of a thesis advisor. This will involve performing literature search, writing proposal for the research and conducting research in the laboratories. At the end of the course students will present the findings of research to the committee and prepare a thesis for approval by the thesis committee. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Mater Mero Manuf Engineering

MSE 5010 Materials Science and Engineering Seminar for Masters Students
Prerequisites: Graduate standing or consent of instructor.
Description: Advanced Research and Development Topics. Maximum 3 credit hours. Graded on pass/fail basis.
Credit hours: 0
Contact hours: Contact: 0 Other: 0
Levels: Graduate
Schedule types: Discussion
Department/School: Mater Mero Manuf Engineering

MSE 5013 Advanced Thermodynamics of Materials
Prerequisites: Graduate standing and permission of instructor.
Description: Thermodynamics of materials is important for materials synthesis, stability and performance. The course will cover basic laws of thermodynamics, solution theory, phase equilibrium diagrams and thermodynamics of electrochemical systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5022 Masters of Engineering Capstone Project
Description: Students will conduct independent literature review or research as guided by the graduate advisory committee. The capstone project will be completed in conjunction with an approved graduate course in Materials Science and Engineering. At the end of the course students will prepare a final report for approval by the graduate program committee.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Mater Mero Manuf Engineering

MSE 5023 Diffusion and Kinetics
Prerequisites: Graduate standing and permission of instructor.
Description: Diffusion and kinetics are important for materials processing, stability, microstructure evolution and performance. The course will cover basic concepts underlying diffusion and kinetics as they relate to materials behavior. Topics on diffusion, nucleation and growth, spinodal decomposition, reactions involving solid with solids, gases and liquids, and phase transformation will be covered.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5030 Independent Study in Materials Science and Engineering
Prerequisites: Graduate standing and permission of instructor.
Description: This course can be used by individual faculty in specific areas related to a student's graduate study. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5033 Composite Materials
Prerequisites: Graduate standing and permission of instructor.
Description: Composites are important for advancing performance and reliability of existing and new products for aerospace, electronics, and medical systems. This course is to introduce fundamental concepts for the design, fabrication and mechanical property evaluation of composites. This includes methods of fabricating fibers, matrices and composites, toughening mechanisms in composites, mechanical properties, and role of interfaces. The focus will be for composites useful at high temperatures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5043 Advanced Materials Characterization
Prerequisites: Graduate standing and permission of instructor.
Description: Advances in materials require availability, training, and proficiency in advanced instrumentation to characterize materials at length scales from macro- to nanometer-scale. This course is to introduce fundamental concepts forming the basis of different equipments, their operation and capability for developing advanced materials. This includes instruments such as SES, TEM, x-ray diffraction, FTIR, AFM, and Nanoindentation. The lectures will be complemented with hands-on experience to students in labs housing these equipments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5053 Smart Materials
Prerequisites: Graduate standing and permission of instructor.
Description: Advances in new technologies rely on the availability of "smart" materials that adapt to environment. Examples include sun-sensor glasses that become dark in sunlight and clear-out when indoors, and shape-memory materials used as stents in human body. In this course, the definition of a smart material and to understand principles of using electrical and other functional properties of materials to create smart systems is covered. Students are also taught to search literature on a suitable topic and work as a group to write a term paper and make a presentation to the class.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5063 Biomedical Materials
Prerequisites: Graduate standing and permission of instructor.
Description: The course will discuss about structure, composition, properties, and performance of materials with applications in medical and health science.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5073 Tissue Engineering
Prerequisites: Graduate standing or consent of instructor.
Description: Tissue engineering (TE) and the material strategy for different tissue constructs in bone TE, liver TE, neural TE, intestine TE, etc. will be discussed in this course. Same course as CHE 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5083 Advanced Ceramics Processing
Prerequisites: ENSC 2213 and ENSC 3233 and MATH 2153 or permission of instructor.
Description: An introduction to processing techniques to transform ceramics from raw materials to finished products. This includes powder synthesis and beneficiation, colloidal processing, forming techniques, sintering and finishing operations and an introduction to chemical processing routes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5093 Fundamentals of Materials Science
Prerequisites: Instructor approval.
Description: MSE 5093 is a first-year graduate course that covers basic concepts in materials science. The course is designed for both materials science and engineering graduates and graduates with other engineering or science backgrounds (physics, chemistry, mechanical engineering, chemical engineering, electrical engineering, etc.).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5103 Electrical and Optical Properties of Ceramics
Prerequisites: Graduate standing and permission of instructor.
Description: Inorganic ceramic materials are useful in many applications because of their electrical, optical, dielectric, and magnetic properties. These are important for advancing performance and reliability of existing and new products for aerospace, electronics and medical systems. This course is to introduce fundamental concepts for the understanding of principles of electrical and optical behaviors of ceramic materials including atomic structure, conduction mechanisms, processing and electrical-optical properties.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5113 Diffraction in Materials
Prerequisites: Graduate standing and consent of instructor.
Description: Introduction to crystallography and diffraction with an emphasis on X-ray diffraction, some exposure to Neutron diffraction, radiography, and tomography. Applications will focus on mechanical properties measurements. New methods will be surveyed with an emphasis on current research. Same course as MAE 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5123 Advanced Composites Manufacturing: Materials, Methods and Applications
Prerequisites: Graduate standing and permission of instructor.
Description: Covers important topics such as basic concepts and definitions of composite materials, fabrication, structure, properties, and applications of fibrous materials, structure and properties of polymer matrix, metal matrix and ceramic matrix materials, constituent materials, fabrication and repair methods, properties and applications of polymer matrix composites, metal matrix composites, ceramic matrix composites and carbon/carbon composites and markets.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5133 Solid Oxide Fuel Cells
Prerequisites: Graduate standing and permission of instructor.
Description: The objective of this course is to introduce fundamental concepts for energy production using solid oxide fuel cells. The course will include fundamentals of solid oxide fuel cells. Efficiency based on thermodynamics will be described. In addition, roles of important materials as electrolyte for oxygen transport, anode and cathodes as electronic conductors, and high temperature seals required for solid oxide fuel cells will be covered. The role of fuel cells in the current and future energy systems will also be described.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5143 Batteries and Supercapacitors for Energy Storage
Prerequisites: Graduate standing and permission of instructor.
Description: The objective of this course is to introduce fundamental concepts for energy storage using batteries and supercapacitors. The course will include fundamentals of electrochemical systems/batteries and supercapacitors. Efficiency of storage based on thermodynamics will be described. In addition, role of important materials required in selected battery systems and capacitors will be included. The role of batteries and supercapacitors in the current and future energy storage devices will be described.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5153 Crystal Physics and Materials Properties
Prerequisites: Graduate standing or consent of instructor.
Description: This course is about crystal physics and crystal chemistry, and their applications to engineering problems. It is designed as an introduction to the relationships between symmetry and the directional physical properties of crystals. Emphasis will be on the fundamental understanding of symmetry arguments as criteria in the material selection process for technological applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5163 Nondestructive Evaluation of Materials
Prerequisites: Instructor Approval.
Description: MSE 5163 covers fundamentals of common methods for Nondestructive Evaluation (NDE) of materials, their application and advantages/limitations for engineering inspections. NDE techniques involving mechanical, optical, thermal and electronmagnetic phenomena are covered and include radiographs, ultrasonics, eddy currents, penetrants, magnetic flux, and visual methods. The course is suitable for students in materials and other engineering majors (mechanical/chemical/industrial/civil/electrical).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5173 Organic Electronic Materials and Devices
Prerequisites: Graduate standing and permission of instructor.
Description: This course will serve as an introduction to organic materials with applications to active electronic and optoelectronic devices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5174 Fundamentals of Photovoltaics
Prerequisites: Graduate standing and permission of instructor.
Description: This course will serve as in introduction to photovoltaic materials and devices. This course will cover commercial and emerging photovoltaic technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5193 Advanced Materials Processing
Prerequisites: Instructor Approval.
Description: MSE 5193 is a first-year graduate course that covers basic concepts in materials processing. The course is designed for both materials engineering graduates and graduates with other engineering or science backgrounds (physics, chemistry, mechanical engineering, chemical engineering, industrial engineering, civil engineering, electrical engineering, etc.).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5200 Applied Innovation I
Prerequisites: Graduate standing or consent of graduate program coordinator.
Description: Theory and practice of commercialization of new technologies, business plan development and formation of project teams to commercialize technologies and new products. Same course as EEE 5200.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5223 Additive Manufacturing: Materials, Methods and Applications
Prerequisites: Graduate standing or consent of instructor.
Description: Theory and practice of additive manufacturing, materials and their applications in various fields. Discuss their applications in product development, data visualization, rapid prototyping, and specialized manufacturing, with special emphasis on direct digital manufacturing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5273 Recycling and Sustainability for a Circular Economy
Description: An experiential graduate level course about sustainable materials development for recycling materials such as composites, carpet, construction and demolition waste, tires, E-waste, precious platinum group metals from catalytic converters, and polymers such as PET, LDPE, HDPE, and PP. This fits with OSU's efforts in recycling carpet and PET based materials. The students will understand how to conduct LCA and cradle to cradle assessment of the products being recycled.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5553 Fatigue and Fracture
Prerequisites: MAE 4333 or consent of instructor.
Description: The course provides an introduction to the mechanics of fracture of brittle and ductile materials and covers the basics of both linear-elastic fracture mechanics (LEFM) and elastic-plastic fracture mechanics (EPFM). Crack initiation and propagation is studied under quasi-static, dynamic, and cyclic loading conditions. Models are presented for time dependent fracture including creep and fatigue crack growth. Methods to experimentally determine fracture properties, based on relevant ASTM standards, are introduced. Same course as MAE 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5583 Corrosion Engineering
Prerequisites: ENSC 3313 or equivalent.
Description: Modern theory of corrosion and its applications in preventing or controlling corrosion damage economically and safely in service. Same course as MAE 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5683 Thermodynamics and Thermostatistics of Materials
Prerequisites: ENSC 3313 or equivalent.
Description: Notions of energy, entropy, equilibrium, macrostates, and microstates and their relation to material processes and properties. Deriving material properties from equations of state: Maxwell relations. Statistical thermodynamics: predicting material properties from microstates. Partition function. Phase transformations. Thermodynamics of surfaces and defects. Electrochemistry. Same course as MAE 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 5693 Phase Transformations in Materials
Prerequisites: Graduate standing or consent of instructor.
Description: Principles of phase transformations in material. Structure of materials, phase diagrams, diffusion, solidification, and diffusional and diffusionless transformations will be covered. Recent developments in materials research relevant to phase transformations. Same course as MAE 5693.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MSE 6000 Doctoral Dissertation
Prerequisites: Graduate standing and permission of instructor.
Description: Students will be performing dissertation research under the guidance of the student's doctoral dissertation advisor. This will involve performing literature search, writing proposal for the research, and conducting research in the laboratories. At the end of the course, students will present the findings of the research to the committee and prepare a dissertation for approval by the dissertation committee. Offered for variable credit, 1-9 credit hours, maximum of 60 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Mater Mero Manuf Engineering

MSE 6010 Materials Science and Engineering Seminar for PhD Students
Prerequisites: Graduate standing and consent of graduate program coordinator.
Description: This seminar explores advances in materials and processing across length scales from macro to nanometer. Students will interact with experts, peers, and guest speakers from industry and academia, while presenting their own work for feedback. Topics include research projects and structure-property co-relationships of advanced materials. Designed to build research skills and form the basis of future ideas and concepts. Maximum of three credit hours. Graded on pass/fail basis.
Credit hours: 0
Contact hours: Contact: 0 Other: 0
Levels: Graduate
Schedule types: Discussion
Department/School: Mater Mero Manuf Engineering

Mathematics (MATH)

MATH 1483 Mathematical Functions and Their Uses (Q)
Prerequisites: An acceptable placement score - see placement.okstate.edu.
Description: Analysis of functions and their graphs from the viewpoint of rates of change. Linear, exponential, logarithmic and other functions. Applications to the natural sciences, agriculture, business and the social sciences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought
Additional Fees: MATH 1483 Corequisite fee of $90 and Individ Study Tuition and fee of $189.10 per credit hour apply.

MATH 1493 Applications of Modern Mathematics (Q)
Prerequisites: An acceptable placement score (see placement.okstate.edu).
Description: Introduction to contemporary applications of discrete mathematics. Topics from management science, statistics, coding and information theory, social choice and decision making, geometry and growth.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought
Additional Fees: MATH 1493 Corequisite fee of $90 applies.

MATH 1513 College Algebra (Q)
Prerequisites: An acceptable placement score (see placement.okstate.edu). Two years of high school algebra recommended.
Description: Quadratic equations, functions and graphs, inequalities, systems of equations, exponential and logarithmic functions, theory of equations, sequences, permutations and combinations. Combined credit toward a degree for MATH 1513, MATH 1613 and MATH 1715 limited to six hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought
Additional Fees: MATH 1513 Corequisite fee of $90, Cowboy Concur OL NRes Tuition fee of $300 per credit hour, Cowboy Concur OL Res Tuition fee of $189.10 per credit hour, and STW HS Concurrent Enroll Tuit fee of $189.10 per credit hour apply.

MATH 1583 Applied Geometry and Trigonometry (Q)
Prerequisites: A grade of "C" or better in one of MATH 1483 or MATH 1513, or an acceptable placement score (see placement.okstate.edu).
Description: Geometry, trigonometry, and their applications to technology and design. Not intended for calculus-bound students.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought

MATH 1613 Trigonometry (Q)
Prerequisites: MATH 1513 with grade of "C" or better or an acceptable placement score (see placement.okstate.edu).
Description: Trigonometric functions, solution of triangles and applications to physical sciences. Combined credit toward a degree for MATH 1513, MATH 1613 and MATH 1715 limited to six hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought

MATH 1715 Precalculus (Q)
Prerequisites: An acceptable placement score (see http://placement.okstate.edu). One year of high school geometry and two years of high school algebra recommended.
Description: Includes an integrated treatment of topics from College Algebra and Trigonometry. Combined credit toward a degree for MATH 1513, MATH 1613 and MATH 1715 limited to six hours. Satisfies the six hour general education Analytical and Quantitative Thought requirement.
Credit hours: 5
Contact hours: Lecture: 5 Contact: 5
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought

MATH 1813 Preparation for Calculus (Q)
Prerequisites: MATH 1513 with grade of “C” or better or an acceptable placement score (see placement.okstate.edu).
Description: A conceptual approach to the algebra and trigonometry needed for calculus, including polynomial, rational, exponential, logarithmic, and trigonometric functions, inverse and composite functions, rates of change and the limiting process. Combined credit towards a degree for MATH 1513, MATH 1613, and MATH 1813 limited to six hours. May not be used for degree credit with MATH 1715.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought
Additional Fees: MATH 1813 Corequisite fee of $90, Cowboy Concur OL NRes Tuition fee of $300 per credit hour, and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

MATH 1910 Special Studies
Prerequisites: Consent of instructor.
Description: Special subjects in mathematics. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 2103 Business Calculus (Q)
Prerequisites: A grade of "C" or better in one of MATH 1483 or MATH 1513 or MATH 1715 or MATH 1813, or an acceptable placement score (see http://placement.okstate.edu).
Description: An introduction to calculus in the context of applications to business. Previously offered as MATH 2713.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought
Additional Fees: Individ Study Tuition and fee of $189.10 per credit hour applies.

MATH 2123 Calculus for Technology Programs I (Q)
Prerequisites: MATH 1613 with a grade of "C" or better, or MATH 1715 with a grade of "C" or better, or MATH 1813 with a grade of "C" or better, or an acceptable placement score (see placement.okstate.edu).
Description: First semester of a terminal sequence in calculus for students in the School of Technology. Functions and graphs, differentiation and integration with applications. Previously offered as MATH 2373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought

MATH 2133 Calculus for Technology Programs II (Q)
Prerequisites: A grade of "C" or better in MATH 2123 or in MATH 2144.
Description: Second semester of a terminal sequence in calculus for students in the School of Technology. Calculus of trigonometric, exponential and logarithmic functions and applications to physical problems. Previously offered as MATH 2383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought

MATH 2144 Calculus I (Q)
Prerequisites: MATH 1613 with grade of "C" or better, or MATH 1715 with grade of "C" or better, or MATH 1813 with grade of "C" or better, or an acceptable placement score (see placement.okstate.edu).
Description: An introduction to derivatives, integrals and their applications. Previously offered as MATH 2145 and MATH 2265.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought
Additional Fees: MATH 2144 Corequisite fee of $90, Cowboy Concur OL NRes Tuition fee of $300 per credit hour, and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

MATH 2153 Calculus II (Q)
Prerequisites: MATH 2144 with grade of "C" or better.
Description: A continuation of MATH 2144, including techniques of integration, series and their applications, parametric equations, and polar coordinates. Previously offered as MATH 2155, MATH 2163, and MATH 2365.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought

MATH 2163 Calculus III
Prerequisites: MATH 2153 with grade of "C" or better.
Description: A continuation of MATH 2153, including differential and integral calculus of functions of several variables and an introduction to vector analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 2233 Differential Equations
Prerequisites: MATH 2153 with grade of "C" or better.
Description: Methods of solution of ordinary differential equations with applications. First order equations, linear equations of higher order, series solutions and Laplace transforms. Combined credit toward a degree for MATH 2233, MATH 3013, and MATH 3263 limited to six hours. Previously offered as MATH 2613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 2890 Honors Experience in Math
Prerequisites: Honors College participation and concurrent enrollment in a designated MATH course.
Description: A supplemental Honors experience in mathematics to partner concurrently with designated MATH course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Honors Credit

MATH 2900 Undergraduate Research
Prerequisites: Consent of Instructor.
Description: A guided program of independent reading and research under the direction of a faculty member. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 2910 Special Studies
Prerequisites: Consent of instructor.
Description: Special subjects in mathematics. Offered for variable credit. 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 3013 Linear Algebra (Q)
Prerequisites: MATH 2153 with a grade of "C" or better.
Description: Algebra and geometry of finite-dimensional linear spaces, linear transformations, algebra of matrices, eigenvalues and eigenvectors. Combined credit toward a degree for MATH 2233, MATH 3013 and MATH 3263 limited to six hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Analytical & Quant Thought

MATH 3263 Linear Algebra and Differential Equations
Prerequisites: MATH 2153 with a grade of "C" or better.
Description: An integrated treatment of linear algebra and differential equations. Combined credit toward a degree for MATH 2233, MATH 3013, and MATH 3263 limited to six hours. Previously offered as MATH 3623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 3403 Geometric Structures for Early Childhood and Elementary Teachers
Prerequisites: MATH 1483 or MATH 1493 or MATH 1513.
Description: Foundations of geometry for prospective early childhood and elementary teachers, emphasizing conceptual understanding, in-class investigations, writing mathematical explanations, and analyzing elementary students' thinking. Topics include measurement, area, volume, transformations, scaling and similarity, angles, circles, quadrilaterals, and triangles. MATH 3403 and MATH 3603 prepare students for SMED 3153 and SMED 4153 or HDFS 3223. Previously offered as MATH 3733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 3583 Introduction to Mathematical Modeling
Prerequisites: MATH 2233 and MATH 3013 with grades of "C" or better.
Description: A project-based introduction to mathematical modeling: model building, computation and simulation, model verification, interpretation, and refinement. Students will create and analyze mathematical models to solve problems in scientific or business contexts. Techniques may include discrete or continuous models, dynamical systems, differential equations, empirical modeling, and other approaches. Written reports and oral presentations required. May not be used for degree credit with MATH 4583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 3603 Mathematical Structures for Early Childhood and Elementary Teachers
Prerequisites: MATH 1483 or MATH 1493 or MATH 1513.
Description: Foundations of number concepts for prospective early childhood and elementary teachers, emphasizing conceptual understanding, in-class investigations, writing mathematical explanations, and analyzing elementary students' thinking. Topics include the decimal number system, fractions, negative numbers, properties of arithmetic, addition, subtraction, multiplication, and division. MATH 3603 and MATH 3403 prepare students for SMED 3153 and SMED 4153 or HDFS 3223. Previously offered as MATH 3723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 3613 Introduction to Abstract Algebra
Prerequisites: MATH 3013 with a grade of "C" or better.
Description: An introduction to mathematical reasoning including logical structure of statements, quantifiers, basic set theory and techniques of proof. Elementary number theory including divisors and prime factorization, the Euclidean algorithm, and modular arithmetic. Introduction to rings, integral domains, fields, and polynomial rings. Previously offered as MATH 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 3703 Mathematical Structures in the Middle Grades
Prerequisites: MATH 3603 and MATH 3403 with grades of "C" or better.
Description: Foundations of mathematical concepts for prospective middle school teachers, emphasizing conceptual understanding, in-class investigations, writing mathematical explanations, and analyzing students' thinking. Topics include middle-grade number concepts such as ratio and proportion, negative numbers, exponents, factors and multiples, and prime numbers, and algebra concepts such as expressions and equations. Additional topics selected from geometry, probability, or statistics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 3890 Advanced Honors Experience in Mathematics
Prerequisites: Honors College participation and concurrent enrollment In a designated MATH course.
Description: A supplemental Honors experience in mathematics to partner concurrently with designated upper-division MATH course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics
General Education and other Course Attributes: Honors Credit

MATH 3910 Special Studies
Prerequisites: Consent of instructor.
Description: Special subjects in mathematics. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 3933 Introduction to Mathematical Research
Prerequisites: MATH 3013 with grade of "C" or better; MATH 3613 with grade of "C" or better recommended.
Description: A project-based introduction to the core methods used in mathematical research: computation, pattern recognition, conjecture, proof, and generalization. Students conduct inquiries in various mathematical areas to be selected from number theory, combinatorics, game theory, and others. Calculation and computer experimentation will be used to gather data and facilitate recognition of patterns. Written reports and oral presentation of solutions required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4013 Calculus of Several Variables
Prerequisites: MATH 2163 and MATH 3013 with grades of "C" or better.
Description: Differential and integral calculus of functions of several variables, vector analysis, Stokes' Theorem, Green's Theorem and applications. May not be used for degree credit with MATH 5063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4023 Introduction to Analysis
Prerequisites: MATH 2153 and MATH 3613 with grades of "C" or better, or consent of instructor.
Description: An introduction to analysis of functions of one real variable emphasizing the reading and writing of mathematical proof. Basic logic, set theory, functions and relations, cardinality of sets. Structure of the real numbers, completeness, open and closed sets, compact sets. Convergence of sequences bounded and monotone sequences, subsequences. Limits of functions, continuity. May not be used for degree credit with MATH 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4033 History of Mathematics
Prerequisites: MATH 2153 with a grade of "C" or better.
Description: Historical development of major mathematical ideas and methods from ancient times through the 18th century, with a brief survey of selected later developments. Includes contributions from diverse cultures and influences from astronomy and physics. The course will emphasize understanding historical techniques and relating them to current practice. The course provides background and historical perspectives for future math teachers. May not be used for degree credit with MATH 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4063 Advanced Linear Algebra
Prerequisites: MATH 3013 and MATH 3613 with minimum grade of “B”; MATH 4023 recommended.
Description: A rigorous treatment of vector spaces, linear transformations, determinants, orthogonal and unitary transformations, canonical forms, bilinear and hermitian forms, and dual spaces. Honors and regular sections are offered. May not be used for degree credit with MATH 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4083 Intermediate Analysis
Prerequisites: MATH 4023 with grade of “C” or better.
Description: Continuation of MATH 4023. Review of limits and continuity. Properties of continuous functions, uniform continuity, the derivative, the Mean Value Theorem. The Riemann integral, the Fundamental Theorem of Calculus. Infinite series, power series, pointwise and uniform convergence of series of functions. May not be used for degree credit with MATH 5083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4143 Advanced Calculus I
Prerequisites: MATH 4023 with minimum grade of “B”.
Description: A rigorous treatment of calculus for functions of one and several variables. Elementary topology of Euclidean and metric spaces, continuity and uniform continuity, differentiation and integration in one variable. Honors and regular sections are offered. Same course as MATH 4353. May not be used for degree credit with MATH 5043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4153 Advanced Calculus II
Prerequisites: MATH 4143 with minimum grade of “C”; minimum grade of “B” recommended.
Description: Continuation of MATH 4143. A rigorous treatment of sequences and series of functions, uniform convergence, and differentiation and integration of vector-valued functions. Honors and regular sections are offered. Same course as MATH 4363. May not be used for degree credit with MATH 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4233 Intermediate Differential Equations
Prerequisites: MATH 2233 and MATH 3013 with grades of "C" or better.
Description: Systems of differential equations, series solutions, special functions, elementary partial differential equations, Sturm-Liouville problems, stability and applications. Previously offered as MATH 4653. May not be used for degree credit with MATH 5203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4263 Introduction to Partial Differential Equations
Prerequisites: MATH 2163 and MATH 2233 and MATH 3013 with grades of "C" or better.
Description: Solution of the standard partial differential equations (Laplace’s equation, transport equation, heat equation, wave equation) by separation of variables and transform methods, including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics. May not be used for degree credit with MATH 5263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4283 Functions of a Complex Variable
Prerequisites: MATH 4013 with a grade of "C" or better, or consent of instructor.
Description: Analytic functions of a complex variable, contour integrals, Taylor series and Laurent series, zeroes and singularities, residues and evaluation of integrals, conformal mapping, and applications. Previously offered as MATH 4673. May not be used for degree credit with MATH 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4303 General Topology
Prerequisites: MATH 4023 with minimum grade of "B" or consent of instructor.
Description: Basic properties of topological spaces and continuous functions including connectedness, compactness, and separation and countability axioms. Metric, product, and quotient spaces, Urysohn's lemma, and Tietze extension theorem. Honors and regular sections are offered. May not be used for degree credit with MATH 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4343 Introduction to Topology
Prerequisites: MATH 4023 with a grade of "C" or better.
Description: Topological spaces, basic point-set topology, introduction to surfaces and three-manifolds, introduction to knot theory, applications. May not be used for degree credit with MATH 5343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4403 Geometry
Prerequisites: MATH 3013 and MATH 3613 with grades of "C" or better.
Description: A rigorous and thorough development of plane geometry including lines, triangles, and circles. Congruence of figures using rigid motions and similarity using dilations. Construction of geometric figures. Additional topics may include non-Euclidean geometries and higher dimensional geometry. Previously offered as MATH 4043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4423 Geometry and Algorithms in Three-Dimensional Modeling
Prerequisites: MATH 2163 and MATH 3013 and (CS 1103 or CS 1113 or ENGR 1412) with grades of "C" or better.
Description: A project-based introduction to 3D computer-aided design tools from a mathematical perspective. Students will learn some of the mathematical background behind computer representation and manipulation of 3D geometry and will apply their knowledge, via both graphical user and programming interfaces, to design and 3D-print models visualizing mathematical concepts. Written reports and oral presentation required. May not be used for degree credit with MATH 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4443 Differential Geometry of Curves and Surfaces
Prerequisites: MATH 2163, Calculus III, and MATH 3013, Linear Algebra, with grades of "C" or better.
Description: Calculus applied to curves and surfaces in three dimensions: length and curvature of plane curves, graphs and level sets, surfaces, tangent spaces, vector fields, orientation. Local and global theory of curves and surfaces, intrinsic and extrinsic geometry, the Gauss-Bonnet Theorem, applications. May not be used for degree credit with MATH 5443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4453 Mathematical Interest Theory
Prerequisites: MATH 2153 and MATH 2233 with grades of "C" or better.
Description: Fundamental concepts of financial mathematics including simple and compound interest, inflation, yield rates, and equations of value for annuities, stocks, bonds, and other financial instruments. Determining equivalent measures of interest, determining yield rates, estimating rates of return, amortization. Useful in preparing for the actuarial FM exam. May not be used for degree credit with MATH 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4513 Introduction to Numerical Analysis
Prerequisites: MATH 2233 and MATH 3013 with grades of "C" or better and knowledge of programming, or consent of instructor.
Description: Computer arithmetic and round-off errors, numerical solution to nonlinear equations, interpolation, numerical differentiation and integration, numerical solutions to ordinary differential equations, error analysis for numerical solutions and approximations. Additional topics may include direct and iterative solutions for linear systems for equations. Same course as CS 4513. May not be used for degree credit with MATH 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4533 Matrix Methods in Machine Learning
Prerequisites: MATH 3013 with grade of “C” or better and knowledge of computer programming, or consent of instructor.
Description: Introduction to matrix methods and other mathematical tools used in machine learning. Topics include linear equations, matrix factorizations, eigenvalue and singular value decompositions, and real-world applications such as data mining and pattern recognition. May not be used for degree credit with MATH 5533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4553 Introduction to Optimization
Prerequisites: MATH 2163 and MATH 3013 with grades of "C " or better.
Description: A survey of optimization theory and methods for functions of several variables. Unconstrained optimization, gradient methods. Linear programming, simplex method, duality. Nonlinear constrained optimization. May not be used for degree credit with MATH 5503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4573 Introduction to Mathematical Epidemiology
Prerequisites: MATH 2163, Calculus III, MATH 2233, Differential Equations, and MATH 3013, Linear Algebra, with grades of "C" or better; and basic experience in coding in MATLAB, Python, R, or similar programming language or consent of instructor.
Description: An introduction to the process of applying mathematical and computational techniques to understand the dynamics of infectious diseases. Classical epidemic models including the Kermack-McKendrick SIR model and its variations. The basic reproduction number as a measure of pathogen transmissibility. Mathematical aspects of epidemic models including steady states and stability analysis. Numerical solutions and simulations of infectious disease models. Includes independent projects, written reports, and oral presentations. May not be used for degree credit with MATH 5573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4590 Professional Practice in Mathematics
Prerequisites: Declared major in mathematics and consent of instructor.
Description: Internship or practicum experience applying mathematical principles to solve problems encountered during employment or an internship in business, industry, or government. Written and oral reports may be required. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 4613 Abstract Algebra I
Prerequisites: MATH 3613 with minimum grade of “B”; MATH 4023 recommended.
Description: Introduction to groups, rings, and fields. Group theory topics include subgroups, quotient groups, isomorphism, homomorphism, and Lagrange's Theorem. Ring theory topics include ideals, homomorphisms, integral domains and factorization. Field theory topics include subfields and field extensions. Honors and regular sections are offered. Same course as MATH 4113. May not be used for degree credit with MATH 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4623 Abstract Algebra II
Prerequisites: MATH 4613 with minimum grade of “C”; minimum grade of “B” recommended.
Description: Continuation of MATH 4613. Topics include group actions, the Sylow theorems, polynomial rings, field extensions, Galois theory, and the insolubility of the quintic. Honors and regular sections are offered. May not be used for degree credit with MATH 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4663 Combinatorics
Prerequisites: MATH 3013 with a grade of "C" or better.
Description: Introduction to graph theory and network theory, counting techniques, generating functions, recurrence relations, and difference equations. Previously offered as MATH 4273. May not be used for degree credit with MATH 5673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4713 Number Theory
Prerequisites: MATH 3613 with a grade of "C" or better.
Description: Divisibility of integers, congruencies, quadratic residues, distribution of primes, continued fractions and the theory of ideals. Previously offered as MATH 4243. May not be used for degree credit with MATH 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4753 Introduction to Cryptography
Prerequisites: MATH 3013 and (MATH 3613 or CS 3653) with grades of "C" or better.
Description: Classical and modern techniques for transmitting and managing information in the presence of eavesdroppers or adversaries and the mathematical principles on which they are based. Symmetric and asymmetric ciphers such as RSA and public key cryptography. Modular arithmetic, the factoring problem, and the discrete logarithm problem. May not be used for degree credit with MATH 5753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4813 Groups and Representations
Prerequisites: MATH 3013 and MATH 3613 with grades of "C" or better, or consent of instructor.
Description: An introduction to groups, group actions, symmetry groups, representations and characters. Further topics may include infinite symmetry groups, applications to chemistry and physics, finite isometry groups and geometry. May not be used for degree credit with MATH 5803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4893 Advanced Perspectives on Secondary Mathematics
Prerequisites: MATH 2153 with minimum grade of "C" and enrollment in the STCH option on the BS in Mathematics.
Description: A conceptually rigorous treatment of topics in secondary mathematics for prospective teachers including functions, rates of change, and modeling with linear, exponential, logarithmic, and trigonometric functions. Emphasis on productive ways of reasoning in secondary mathematics and developing pre-service teachers' ability to teach for understanding. No credit towards the MATH minor. Previously offered as MATH 3303. May not be used for degree credit with MATH 5893.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4900 Undergraduate Research
Prerequisites: Consent of instructor.
Description: A guided program of independent reading and research under the direction of a faculty member. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 4910 Special Studies
Prerequisites: Consent of instructor.
Description: Special subjects in mathematics. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 4950 Problem Solving Seminar
Prerequisites: MATH 2153 with a grade of "C" or better.
Description: The general process of problem solving. Selected problem-solving techniques. Applications to challenging problems from all areas of mathematics. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mathematics

MATH 4963 Preparation for Senior Thesis
Prerequisites: Consent of instructor, junior or senior standing.
Description: A guided program of independent reading and research under the direction of a faculty member. This course may serve as the first part of a two-semester senior thesis or senior honors thesis experience.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 4973 Senior Thesis
Prerequisites: Consent of instructor, senior standing.
Description: A guided program of independent reading and research under the direction of a faculty member. The project culminates in an oral presentation, and a written report also approved by a second faculty reader.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 4993 Senior Honors Thesis
Prerequisites: Consent of instructor, senior standing, and Honors Program participation.
Description: A guided program of independent reading and research under the direction of a faculty member. The project culminates in an oral presentation, and a written report also approved by a second faculty reader. Required for graduation with Departmental honors in mathematics.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mathematics
General Education and other Course Attributes: Honors Credit

MATH 5000 Master's Research and Thesis
Prerequisites: Consent of advisory committee.
Description: Directed reading and research culminating in the master's report or master's thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 5003 Abstract Algebra I
Prerequisites: MATH 3613 with minimum grade of “B”; Math 4023 or 5073 recommended.
Description: Introduction to groups, rings, and fields. Group theory topics include subgroups, quotient groups, isomorphism, homomorphism, and Lagrange's theorem. Ring theory topics include ideals, homomorphisms, integral domains, and factorization. Field theory topics include subfields and field extensions. May not be used for degree credit with MATH 4613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5010 Seminar in Mathematics
Prerequisites: Consent of instructor.
Description: Topics in mathematics. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 5013 Abstract Algebra II
Prerequisites: MATH 4613 or MATH 5003.
Description: Continuation of MATH 5003. Topics include group actions, the Sylow theorems, polynomial rings, field extensions, Galois theory, and the insolubility of the quintic. May not be used for degree credit with MATH 4623.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5023 Advanced Linear Algebra
Prerequisites: MATH 3013 and MATH 3613 with grades of “C” or better; grades of “B” or better recommended.
Description: A rigorous treatment of vector spaces, linear transformations, determinants, orthogonal and unitary transformations, canonical forms, bilinear and Hermitian forms, and dual spaces. Meets with MATH 4063. May not be used for degree credit with MATH 4063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5033 History of Mathematics
Prerequisites: MATH 2153 with a grade of "C" or better.
Description: Historical development of major mathematical ideas and methods from ancient times through the 18th century, with a brief survey of selected later developments. Includes contributions from diverse cultures and influences from astronomy and physics. The course will emphasize understanding historical techniques and relating them to current practice. The course provides background and historical perspectives for future math teachers. No credit for students with credit in MATH 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5043 Advanced Calculus I
Prerequisites: MATH 2163, MATH 3013, and MATH 4023 with grades of “C” or better; grades of “B” or better recommended.
Description: A rigorous treatment of calculus for functions of one and several variables. Elementary topology of Euclidean and metric spaces, continuity and uniform continuity, differentiation and integration in one variable. Meets with MATH 4143. May not be used for degree credit with MATH 4143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5053 Advanced Calculus II
Prerequisites: A grade of “C” or better in one of MATH 4143 or MATH 5043; grade of “B” or better recommended.
Description: Continuation of MATH 5043. A rigorous treatment of sequences and series of functions, uniform convergence, and differentiation and integration of vector-valued functions. Meets with MATH 4153. May not be used for degree credit with MATH 4153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5063 Calculus of Several Variables
Prerequisites: MATH 2163 and MATH 3013 with grades of "C" or better.
Description: Differential and integral calculus of functions of several variables, vector analysis, Stokes’ Theorem, Green’s Theorem and applications. May not be used for degree credit with MATH 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5073 Introduction to Analysis
Prerequisites: MATH 2153 and MATH 3613 with grades of "C" or better, or consent of instructor.
Description: An introduction to analysis of functions of one real variable emphasizing the reading and writing of mathematical proof. Basic logic, set theory, functions and relations, cardinality of sets. Structure of the real numbers, completeness, open and closed sets, compact sets. Convergence of sequences bounded and monotone sequences, subsequences. Limits of functions, continuity. May not be used for degree credit with MATH 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5083 Intermediate Analysis
Prerequisites: MATH 4023 with grade of “C” or better.
Description: Continuation of MATH 4023. Review of limits and continuity. Properties of continuous functions, uniform continuity, the derivative, the Mean Value Theorem. The Riemann integral, the Fundamental Theorem of Calculus. Infinite series, power series, pointwise and uniform convergence of series of functions. May not be used for degree credit with MATH 4083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5133 Stochastic Processes
Prerequisites: MATH 2233, MATH 3013 and STAT 5123.
Description: Definition of stochastic processes, probability structure, mean and covariance function, the set of sample functions, stationary processes and their spectral analysis, renewal processes, counting analysis, discrete and continuous Markov chains, birth and death processes, exponential model, queuing theory. Same course as IEM 5133 & STAT 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5143 Real Analysis I
Prerequisites: MATH 4153 or MATH 5053.
Description: Measure theory, measurable functions, integration and differentiation of functions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5153 Real Analysis II
Prerequisites: MATH 5143.
Description: Differentiation with respect to measures. Aspects of point set topology: nets, locally compact spaces, product spaces. Elementary functional analysis: Hahn-Banach, uniform boundedness, open mapping theorems, weak topologies, Hilbert spaces. Riesz representation theorems: duals of Lebesgue spaces and spaces of continuous functions. Other topics may include: elements of Fourier analysis, distribution theory, Stone-Weierstrass theorem.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5193 Differentiable Manifolds
Prerequisites: MATH 4153 or MATH 5053; recommended MATH 4343 or MATH 5303.
Description: Differentiable manifolds and maps, tangent vectors, vector fields, integral curves, submanifolds, differential forms, and integration. Additional topics may be selected from: flows, Lie derivatives, the Frobenius theorem, structures defined by differential forms, vector bundles and de Rham theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5203 Intermediate Differential Equations
Prerequisites: MATH 2233 and MATH 3013 with grades of "C" or better.
Description: Systems of differential equations, series solutions, special functions, elementary partial differential equations, Sturm-Liouville problems, stability and applications. Previously offered as MATH 4653. May not be used for degree credit with MATH 4233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5213 Fourier Analysis and Wavelets
Prerequisites: MATH 4013 or MATH 4023.
Description: Orthogonal series expansions, Fourier series and integrals and boundary value problems. Haar wavelets and multiresolution analysis. Applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5233 Partial Differential Equations
Prerequisites: MATH 4013, MATH 4143 and MATH 4233 or consent of instructor.
Description: Representation formulas for solutions of transport equation, Laplace's equation, heat equation and wave equation, mean value theorems, maximum principle, Green's functions, characteristics, eigenvalue problems, separation of variables, transform methods, variational methods, general theory of first order equations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5243 Ordinary Differential Equations
Prerequisites: MATH 4143 or MATH 5043; MATH 4233; MATH 5023.
Description: Banach space, contraction mapping principle, existence and uniqueness theorems, linear systems, higher-order linear equations, boundary value and eigenvalue problems, stability and asymptotic behavior, attractors, Gronwall's inequality, Liapunov method.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5253 Advanced Ordinary Differential Equations
Prerequisites: MATH 5243.
Description: Selected topics in ordinary differential equations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5263 Introduction to Partial Differential Equations
Prerequisites: MATH 2163 and MATH 2233 and MATH 3013 with grades of "C" or better.
Description: Solution of the standard partial differential equations (Laplace's equation, transport equation, heat equation, wave equation) by separation of variables and transform methods, including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics. May not be used for degree credit with MATH 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5273 Functions of a Complex Variable
Prerequisites: MATH 4013 with a grade of "C" or better or consent of instructor.
Description: Analytic functions of a complex variable, contour integrals, Taylor series and Laurent series, zeroes and singularities, residues and evaluation of integrals, conformal mapping, and applications. Previously offered as MATH 4673. May not be used for degree credit with MATH 4283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5283 Complex Analysis I
Prerequisites: MATH 4153 or MATH 5053.
Description: Basic topology of the plane, functions of a complex variable, analytic functions, transformations, infinite series, integration and conformal mapping.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5293 Complex Analysis II
Prerequisites: MATH 5283.
Description: Riemann Mapping Theorem, meromorphic functions, analytic continuation, Dirichlet problem, and entire functions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5303 General Topology
Prerequisites: MATH 4023 or MATH 5073 or consent of instructor.
Description: Basic properties of topological spaces and continuous functions including connectedness, compactness, and separation and countability axioms. Metric, product, and quotient spaces, Urysohn's lemma, and Tietze extension theorem. May not be used for degree credit with MATH 4303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5313 Geometric Topology
Prerequisites: MATH 4613 or MATH 5003, MATH 5303.
Description: Manifolds, complexes, the fundamental group, covering spaces, combinatorial group theory, the Seifert-Van Kampen theorem, and related topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5343 Introduction to Topology
Prerequisites: MATH 4023 with a grade of "C" or better.
Description: Topological spaces, basic point-set topology, introduction to surfaces and three-manifolds, introduction to knot theory, applications. May not be used for degree credit with MATH 4343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5403 Geometry
Prerequisites: MATH 3013 and MATH 3613 or consent of instructor.
Description: A rigorous and thorough development of plane geometry including lines, triangles, and circles. Congruence of figures using rigid motions and similarity using dilations. Construction of geometric figures. Additional topics may include non-Euclidean geometries and higher dimensional geometry. Same course as MATH 4043. May not be used for degree credit with 4403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5413 Differential Geometry
Prerequisites: MATH 4013 or MATH 4143 or MATH 5043.
Description: Differential manifolds, vector fields, differential forms, connections, Riemannian metrics, geodesics, completeness, curvature, and related topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5423 Geometry and Algorithms in Three-Dimensional Modeling
Prerequisites: MATH 2163 and MATH 3013 and (CS 1113 or ENGR 1412) with grades of "C" or better.
Description: A project-based introduction to 3D computer-aided design tools from a mathematical perspective. Students will learn some of the mathematical background behind computer representation and manipulation of 3D geometry and will apply their knowledge, via both graphical user and programming interfaces, to design and 3D-print models visualizing mathematical concepts. Written reports and oral presentation required. May not be used for degree credit with MATH 4423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5443 Differential Geometry of Curves and Surfaces
Prerequisites: MATH 2163 and MATH 3013 with grades of "C" or better.
Description: Calculus applied to curves and surfaces in three dimensions: length and curvature of plane curves, graphs and level sets, surfaces, tangent spaces, vector fields, orientation. Local and global theory of curves and surfaces, intrinsic and extrinsic geometry, the Gauss-Bonnet Theorem, applications. May not be used for degree credit with MATH 4443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5453 Mathematical Interest Theory
Prerequisites: MATH 2153 and MATH 2233 with grades of "C" or better.
Description: Fundamental concepts of financial mathematics including simple and compound interest, inflation, yield rates, and equations of value for annuities, stocks, bonds, and other financial instruments. Determining equivalent measures of interest, determining yield rates, estimating rates of return, amortization. Useful in preparing for the actuarial FM exam. May not be used for degree credit with MATH 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5473 Financial Calculus
Prerequisites: MATH 2153 and (STAT 4123 or STAT 4302 or STAT 5123 or STAT 5253) or consent of instructor.
Description: Introduction to derivative pricing and market derivatives. Introduction to the Ito-Doeblin calculus and martingales; the martingale properties of Brownian motion, the Black-Scholes-Merton theory as a simple, special case of martingale pricing, market models of modern fixed income pricing. Insurance, hedging, and options.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5503 Introduction to Optimization
Prerequisites: MATH 2163 and MATH 3013 with grades of "C " or better.
Description: A survey of optimization theory and methods for functions of several variables. Unconstrained optimization, gradient methods. Linear programming, simplex method, duality. Nonlinear constrained optimization. May not be used for degree credit with MATH 4553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5513 Introduction to Numerical Analysis
Prerequisites: MATH 2233 and MATH 3013 with grades of "C" or better and knowledge of programming, or consent of instructor.
Description: Computer arithmetic and round-off errors, numerical solution to nonlinear equations, interpolation, numerical differentiation and integration, numerical solutions to ordinary differential equations, error analysis for numerical solutions and approximations. Additional topics may include direct and iterative solutions for linear systems of equations. May not be used for degree credit with MATH 4513 or CS 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5533 Matrix Methods in Machine Learning
Prerequisites: MATH 3013 with grade of “C” or better and knowledge of computer programming, or consent of instructor.
Description: Introduction to matrix methods and other mathematical tools used in machine learning. Topics include linear equations, matrix factorizations, eigenvalue and singular value decompositions, and real-world applications such as data mining and pattern recognition. May not be used for degree credit with MATH 4533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5543 Numerical Analysis for Differential Equations
Prerequisites: MATH 4233, MATH 4513 or CS 4513.
Description: Advanced machine computing, algorithms, analysis of truncation and rounding errors, convergence and stability applied to discrete variables, finite elements, and spectral methods in ordinary and partial differential equations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5553 Numerical Analysis for Linear Algebra
Prerequisites: MATH 3013, and MATH 4513 or CS 4513.
Description: Advanced machine computing, algorithms, analysis of rounding errors, condition, convergence, and stability applied to direct and iterative solution of linear systems of equations, linear least squares problems, and algebraic eigenvalue problems, including LU and QR factorization, conjugate gradients, QR algorithm, and Lanczos method.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5563 Finite Element Methods for Partial Differential Equations
Prerequisites: MATH 4023; MATH 4263; and MATH 4513 or CS 4513 or equivalent. MATH 4143 or MATH 5043 preferred.
Description: Theory and practice of finite element methods, including elliptic boundary value problems, weak formulations, the Ritz-Galerkin method, conforming and non-conforming finite elements, error estimates, and numerical experiments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5573 Introduction to Mathematical Epidemiology
Prerequisites: MATH 2163, Calculus III, Math 2233, Differential Equations, and Math 3013, Linear Algebra, with grades of "C" or better; and basic experience coding in MATLAB, Python, R, or similar programming language, or consent of instructor.
Description: An introduction to the process of applying mathematical and computational techniques to understand the dynamics of infectious diseases. Classical epidemic models including the Kermack-McKendrick SIR model and its variations. The basic reproduction number as a measure of pathogen transmissibility. Mathematical aspects of epidemic models including steady states and stability analysis. Numerical solutions and simulations of infectious disease models. Includes independent projects, written reports, and oral presentations. May not be used for degree credit with MATH 4573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5580 Case Studies in Applied Mathematics
Prerequisites: MATH 2233, MATH 4013, and knowledge of computer programming.
Description: Selected mathematical problems from industry. Independent problem-solving, oral presentation of solutions, and technical report writing. Seminar-style format. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 5593 Methods of Applied Mathematics
Prerequisites: MATH 2233, MATH 4013, and knowledge of computer programming.
Description: Continuous and discrete techniques in modern applied mathematics. Positive definite matrices, eigenvalues and dynamical systems, discrete and continuous equilibrium equations, least squares estimation and the Kalman filter, potential flow, calculus of variations, network flows, and combinatorics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5613 Algebra I
Prerequisites: MATH 4613 or MATH 5003.
Description: A rigorous treatment of classical results in group theory, ring theory, and field theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5623 Algebra II
Prerequisites: MATH 5613.
Description: A rigorous treatment of classical results in module theory, multilinear algebra, and representation theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5653 Data Engineering
Prerequisites: IEM 5083 and (STAT 5253 or STAT 5123 or IEM 5003) and intermediate knowledge of Python and R.
Description: Advanced data engineering and data mining methods to solve problems under data-rich scenarios. Topics covered include a review of supervised learning, detailed discussion of unsupervised learning, and data engineering tools such as data visualization and data preprocessing. Cutting-edge data mining methods are introduced and applied to real-world data sets in various areas such as manufacturing, health care, and agriculture. Same course as IEM 5653 and STAT 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5673 Combinatorics
Prerequisites: MATH 3013 with a grade of "C" or better.
Description: Introduction to graph theory and network theory, counting techniques, generating functions, recurrence relations, and difference equations. May not be used for degree credit with MATH 4663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5713 Number Theory
Prerequisites: MATH 3613 with a grade of "C" or better.
Description: Divisibility of integers, congruencies, quadratic residues, distribution of primes, continued fractions and the theory of ideals. May not be used for degree credit with MATH 4713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5753 Introduction to Cryptography
Prerequisites: MATH 3013 and (MATH 3613 or CS 3653) with grades of "C" or better.
Description: Classical and modern techniques for transmitting and managing information in the presence of eavesdroppers or adversaries and the mathematical principles on which they are based. Symmetric and asymmetric ciphers such as RSA and public key cryptography. Modular arithmetic, the factoring problem, and the discrete logarithm problem. May not be used for degree credit with MATH 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5803 Groups and Representations
Prerequisites: MATH 3013 and MATH 3613 with grades of "C" or better, or consent of instructor.
Description: An introduction to groups, group actions, symmetry groups, representations and characters. Further topics may include infinite symmetry groups, applications to chemistry and physics, finite isometry groups and geometry. May not be used for degree credit with MATH 4813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5893 Advanced Perspectives on Secondary and Collegiate Mathematics
Prerequisites: MATH 3613 and MATH 4023 and enrollment in a graduate program in Mathematics, or consent of instructor.
Description: A conceptually rigorous treatment of core topics in secondary and collegiate mathematics for mathematics educators, including functions, rates of change, modeling with polynomial, rational and transcendental functions, the fundamental theorem of calculus, and connections between secondary and collegiate mathematics. Emphasis on productive ways of reasoning in secondary and collegiate mathematics, including quantitative and covariational reasoning, and developing teachers' ability to teach for understanding. May not be used for degree credit with MATH 3303 or 4893.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5903 Seminar and Practicum in the Teaching of College Mathematics
Prerequisites: Graduate standing in mathematics or consent of instructor.
Description: Foundations of college mathematics teaching, including lecturing, grading and exam preparation. Adapting classroom activities to better serve different types of learners. Current trends in mathematics education such as calculus reform, cooperative learning, and technology in the classroom. Previously offered as MATH 5902.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 5913 Introduction to Research in Mathematics Education
Prerequisites: MATH 3613 or MATH 4023 or equivalent.
Description: Examination and critique of research in mathematics education. A comparative study of research design, analysis, and reporting of both qualitative and quantitative research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6000 Doctoral Research and Dissertation
Prerequisites: Consent of advisory committee.
Description: Directed reading and research culminating in the PhD or EdD thesis. Offered for variable credit, 1-9 credit hours, maximum of 24 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6010 Advanced Seminar in Mathematics
Prerequisites: Consent of instructor and student's advisory committee.
Description: Directed reading on advanced topics in mathematics. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6090 Doctoral Research Project
Prerequisites: Consent of advisory committee.
Description: Directed reading and research culminating in preliminary doctoral research project. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6143 Functional Analysis I
Prerequisites: MATH 4613 or MATH 5003 or MATH 5023, MATH 5153, MATH 5303.
Description: Theory of topological vector spaces including metrizability, consequences of completeness, Banach spaces, weak topologies, and convexity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6213 Harmonic Analysis
Prerequisites: MATH 5153, MATH 5283.
Description: Classical results giving connections among the size of a harmonic or analytic function on a complex domain, the existence and smoothness of its boundary values, and behavior of the Fourier series; selected extensions, related topics and applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6233 Advanced Partial Differential Equations
Prerequisites: MATH 5233 or consent of instructor.
Description: Schwarz class, tempered distributions, basic linear functional analysis, Holder spaces, Sobolev spaces, spaces involving time, Sobolev inequalities, existence and regularity theory of second-order elliptic, parabolic, and hyperbolic equations, semigroup theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6263 Potential Theory
Prerequisites: MATH 5153 and MATH 5283.
Description: Subharmonic and superharmonic functions, potentials, energy problems (including problems with external fields), equilibrium measures, capacities, Dirichlet problems, regularity, Green functions, harmonic measures, conformal mappings, and applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6283 Several Complex Variables
Prerequisites: MATH 5283.
Description: Elements of function theory of several complex variables, including extension phenomena, domains of holomorphy, notions of convexity, holomorphic maps, and complex analytic varieties.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6290 Topics in Analysis
Prerequisites: Consent of instructor.
Description: Advanced topics in analysis. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6323 Algebraic Topology I
Prerequisites: MATH 5313.
Description: Chain complexes, homology and cohomology groups, the Eilenberg-Steenrod axioms, Mayer-Vietoris sequences, universal coefficient theorems, the Eilenberg-Zilber theorem and Kunneth formulas, cup and cap products, and duality in manifolds.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6390 Topics in Topology
Prerequisites: Consent of instructor.
Description: Advanced topics in topology. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6433 Algebraic Geometry
Prerequisites: MATH 5623.
Description: Affine and projective varieties, dimension, algebraic curves, divisors and Riemann-Roch theorem for curves.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6453 Complex Geometry
Prerequisites: MATH 5283.
Description: Complex manifolds, analytic sheaves, differential forms, Dolbeault cohomology, Hodge theory, line bundles, divisors, Kodaira embedding, and vanishing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6490 Topics in Geometry
Prerequisites: Consent of instructor.
Description: Advanced topics in geometry. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6513 Theoretical Numerical Analysis
Prerequisites: MATH 5153, MATH 5543 or CS 5543, and MATH 5553 or CS 5553.
Description: An advanced theoretical treatment based on function spaces and operator theory of algorithms for machine computing and analysis of errors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6590 Topics in Applied Mathematics
Prerequisites: Consent of instructor.
Description: Advanced topics in applied mathematics. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6613 Commutative Algebra
Prerequisites: MATH 5623.
Description: Commutative rings, exactness properties of modules, tensor products, integral dependence, chain conditions, completions, filtrations, local rings, dimension theory, and flatness.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6623 Homological Algebra
Prerequisites: MATH 5623.
Description: Closed and projective classes, resolution and derived functors, adjoint theorem, construction of projective classes in the categories of groups, rings and modules; categories, Abelian categories.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6690 Topics in Algebra
Prerequisites: Consent of instructor.
Description: Advanced topics in algebra. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6713 Analytic Number Theory
Prerequisites: MATH 4283 or MATH 5283.
Description: Arithmetic functions, Zeta and L functions, distribution of primes and introduction to modular forms.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6723 Algebraic Number Theory
Prerequisites: MATH 5013 or MATH 5623.
Description: Number fields, ideal theory, units, decomposition of primes, quadratic and cyclotomic fields, introduction to local fields.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6790 Topics in Number Theory
Prerequisites: Consent of instructor.
Description: Advanced topics in number theory. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6813 Lie Groups and Representations
Prerequisites: MATH 4153 or MATH 5053, MATH 4613 or MATH 5003, MATH 5303.
Description: Differentiable manifolds, vector fields, Lie groups, exponential map, homogeneous spaces, representations of compact Lie groups, and maximal tori.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6823 Lie Algebras
Prerequisites: MATH 5013 and MATH 5023.
Description: Matrix groups, Lie algebras, root systems, structure of semisimple Lie algebras, universal enveloping algebra, and representations of lie algebras.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6890 Topics in Representation Theory
Prerequisites: Consent of instructor.
Description: Advanced topics in representation theory. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

MATH 6923 Research in Undergraduate Mathematics Education
Prerequisites: MATH 5913.
Description: Continuation of MATH 5913 with an emphasis on design of research in undergraduate mathematics education. Development of research questions, review of the literature, data collection and analysis, development and evaluation of research proposals, reporting research results.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mathematics

MATH 6990 Topics in Collegiate Mathematics Education
Prerequisites: Consent of instructor.
Description: Advanced topics in collegiate mathematics education.
Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Mathematics

Mechanical & Aerospace Eng (MAE)

MAE 3013 Engineering Analysis and Methods I
Prerequisites: A grade of "C" or higher in PHYS 2014 and MATH 2233.
Description: Setup and solution of equations which govern mechanical engineering systems. Application and solution of the governing equations to describe the steady state or transient behavior of dynamics, mechanics and circuit problems. Linear sets of equations, ODEs will be used to describe systems. Solutions may be simplified using complex numbers of Fourier/Laplace transforms. Numerical methods for solutions will be covered. Data analysis, quality control and statistical hypothesis testing will be covered.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Mech & Aerospace Engr

MAE 3033 Design of Machines and Mechanisms
Prerequisites: Grades of "C" or higher in ENGR 1332 and MAE 3013 and MAE 3324.
Description: Study of the position, velocity, acceleration, and static and dynamic force behavior of machines and mechanisms. Analysis and synthesis of linkages and gear trains. Characteristics and selection of power sources, including electric motors, hydraulics, pneumatics and internal combustion engines. Lab: Machine tool safety. Use of common machine tools to build machine components. Use of lecture concepts in designing, building, and testing machines and mechanisms.
Credit hours: 3
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 3113 Measurements and Instrumentation
Prerequisites: Grades of "C" or higher in ENSC 2613 and MAE 3013.
Description: Application of basic electronic laboratory measurement equipment. Selection and testing of transducers for measurement of displacement, time frequency, velocity, pressure, force, temperature, flow-rate, and vibration, for machine design applications. Considerations of accuracy, uncertainty and repeatability. Design projects involving the use of analog and digital integrated circuits and construction of prototype sensors. Practice in the use of signal processing, including digital filtering and applications of Fast Fourier Transform theory. Practice in the use of computer-based data acquisition systems. Preparation of formal reports, including the presentation of plots, figures and tables.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 3123 Manufacturing Processes
Prerequisites: Grades of "C" or higher in ENSC 3313.
Description: An introduction to manufacturing processes including the fundamental processes of casting, forging, rolling, extrusion, drawing and metal cutting. Quantitative relationships to identify important parameters which influence a given process.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 3153 Introduction to MAE Design
Prerequisites: Grades of "C" or higher in (ENSC 2113 or concurrency) and (ENSC 2213 or concurrency).
Description: Identify, formulate and solve complex interdisciplinary engineering problems by applying principles of design, engineering science and mathematics.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 3223 Thermodynamics II
Prerequisites: A grade of "C" or higher in MAE 3153.
Description: A continuation of ENSC 2213. Irreversibility and availability, power cycles, refrigeration cycles, mixtures and solutions, chemical reactions, phase and chemical equilibrium, and introduction to compressible flow.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 3233 Heat Transfer
Prerequisites: A grade of "C" or higher in MAE 3333 or concurrency.
Description: Mechanisms of heat transfer. Steady and transient conduction, free and forced convection, heat exchanger design and analysis, radiation and multiphase behavior. Numerical methods, dimensional analysis and boundary layer theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 3253 Applied Aerodynamics and Performance
Prerequisites: Grade of "C" or higher in MATH 2233. Aerospace Engineering majors only.
Description: Relevant fluid properties; standard atmospheres; mathematical models of flows about bodies. Characteristic parameters of airfoils and wings. Thin airfoil theory and flows about finite wings. Boundary layers. Propeller theory. Supersonic and hypersonic flows about wings and lifting bodies. Drag polars. Power required for level flight. Rate of climb and descent. Steady turns. Maximum range and endurance. Design applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 3293 Fundamentals of Aerodynamics
Prerequisites: Grades of “C” or higher in MATH 2233 and MAE 3333. Aerospace Engineering majors only.
Description: Introduction to aerodynamic concepts; governing equations of gas flows in one and two dimensions. Inviscid, incompressible flow, flow over airfoils, flow over finite wings, 3D flow; Compressible flow; Basic thermodynamic and dynamic equations. Nozzle and duct flows, choking, normal and oblique shock waves, Prandtl-Meyer expansions, subsonic compressible flow over airfoils, compressible flow through nozzles, intro into viscous flows.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 3324 Mechanical Design I
Prerequisites: Grades of "C" or higher in ENSC 2143 and ENSC 3313 and MAE 3153.
Description: Introduction to the design process. Consideration of reliability, factors of safety, product liability, and economics. Use of codes, standards, and other design resources. Stress analysis of mechanical components such as beams, rings, cylinders, and shafts. Analysis of stiffness and deflection of straight and curved beams, frames, columns, and links. Consideration of static and fatigue failure theories for various types of engineering materials. Incorporation of stress and deformation analyses and applicable material failure theories literatively until all design needs and constraints are satisfied. Same course as MAE 3323.
Credit hours: 4
Contact hours: Lecture: 3 Contact: 4 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Mech & Aerospace Engr

MAE 3333 Fundamental Fluid Dynamics
Prerequisites: Grade of "C" or better in ENSC 2113 and MATH 2153.
Description: Fluid statics; conservation of mass, momentum and energy in fixed and moving control volumes; steady and unsteady Bernoulli's equation; fluid kinematics and differential analysis of fluid flow; Navier-Stokes equations and exact solutions; dimensional analysis and similitude; laminar and turbulent flow; internal flows; boundary layer theory; lift and drag; pumps.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 3403 Computer Methods in Analysis and Design
Prerequisites: Grades of "C" or higher in ENGR 1412 and ENSC 2123 and MAE 3013 and (MAE 3724 or concurrency).
Description: Application of linear algebra, numerical methods, statistics, and computer methods in the design, analysis, and simulation of mechanical, thermal, and fluid systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 3524 Thermal Fluids Design
Prerequisites: Grades of “C” or higher in ENSC 2213 and MAE 3153 and MAE 3233 and MAE 3333.
Description: Design, modeling and simulation of thermal systems. Analysis and modeling of components such as fans, pumps, ducts, pipes, fittings, heat exchangers, and heat pumps.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 3724 Dynamic Systems Analysis and Introduction to Control
Prerequisites: Grades of “C” or higher in ENSC 2123 and ENSC 2613 and MAE 3013 and (MAE 3113 or ENGR 2421).
Description: Physical and mathematical modeling of mechanical, electrical, fluid, thermal and mixed dynamic systems. Systems analysis in the time domain and in the frequency domain, with an emphasis on first and second order systems. Laplace transform method for solving ordinary linear differential equations. Representation of system models using transfer functions, block diagrams and state variable forms. Use of computer methods for solving linear and nonlinear dynamic system models. Introduction to dynamic system control. Laboratory investigation to demonstrate application. Same course as MAE 3723.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 4003 Introduction to Autonomous Systems
Prerequisites: Grades of "C" or higher in MAE 3403 and (MAE 3724 or ECEN 3723).
Description: Review of representations, coordinate transformations, and kinematics and dynamics of mobile ground and/or aerial robots. Introduction to robot mobility, I.e., path planning, trajectory generation, and trajectory tracking. Introduction to robot perception using sensors such as inertial measurement units, odometry, laser distance scanners, and cameras. Introduction to robot localization using sensor fusion. Introduction to Robot Operating System (ROS).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4010 Mechanical and Aerospace Engineering Projects
Prerequisites: Senior standing in MAE and consent of instructor.
Description: Special projects and independent study in mechanical or aerospace engineering. Offered for variable credit, 1 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mech & Aerospace Engr

MAE 4020 Special Offerings
Prerequisites: Senior standing in MAE and consent of instructor.
Description: This course will be used as a temporary number for new undergraduate course offerings or special one-time only undergraduate course offerings. Repeat credit may be earned with different course subtitles assigned. Offered for 3 credit hours and a maximum of 6 credit hours obtained. May be used as an MAE elective with departmental permission, if not used to fulfill technical elective credit.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4053 Automatic Control Systems
Prerequisites: A grade of "C" or higher in MAE 3724 or ECEN 3723.
Description: Properties of feedback control systems, mathematical models of basic components, state-variable models of feedback systems, design specifications of control systems, time-domain analysis, stability, stability robustness, transform analysis, frequency domain techniques, root-locus, design of single-input-single-output systems and compensation techniques for engineering systems. Same course as ECEN 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4063 Mechanical Vibrations
Prerequisites: A grade of "C" or higher in MAE 3724.
Description: Lumped parameter analysis of multi-mode vibrating systems. Analysis techniques including classical analytical methods, matrix methods and numerical methods. Selection and design of vibration isolation systems. Selection of vibration instrumentation. Machine dynamics, including balancing, whirl, nonlinear effects, and self-excited vibrations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4213 Spacecraft Design
Prerequisites: A grade of "C" or higher in MAE 3253 and (MAE 3113 or [ENGR 2421 and concurrent in ENSC 2411]).
Description: Elements of basic aerospace engineering concepts focusing on spacecraft design. Fundamental material will include orbital dynamics, rocket theory and launch vehicle performance, principles of spacecraft stability and control, propulsion systems, aerospace structures, space environments and its effect on spacecraft design (thermal, radiation, magnetosphere and solar wind), atmospheric reentry, thermal management, power systems, telecommunications, cost analysis, spacecraft design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4223 Aerospace Engineering Laboratory
Prerequisites: Grades of "C" or higher in MAE 3253 and MAE 4283 and (MAE 3113 or ENGR 2421). Aerospace Engineering majors only.
Description: Experimental study of aerospace principles including topics in aeronautics and astronautics. State-of-the-art instrumentation, diagnostic, and computerized data acquisition equipment and techniques applied to experiments including application of low speed wind tunnel testing techniques, rocket propulsion and control-jet experiments, fundamentals of supersonic nozzles, and flight test evaluation of performance, stability, control, and handling qualities of a propeller-driven airplane.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 4243 Aerospace Propulsion and Power
Prerequisites: Grades of “C” or higher in MAE 3153 and MAE 3293. Aerospace Engineering majors only.
Description: The study of aerospace power and propulsion engines utilizing a gas as the working fluid. Design and analysis of complete aircraft engine systems and individual components of the aircraft engine. Engine component matching for design using analysis routines, including inlets and diffusers, fans and compressors, combustors, turbines, nozzles, and propellers. Additional propulsion and power systems including chemical and non-chemical rocket motors and other internal combustion engines.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4263 Energy Conversion Systems
Prerequisites: Grades of "C" or higher in MAE 3153 and MAE 3524.
Description: This course covers the use of renewable and non-renewable energy sources in power production. Energy conversion processes are analyzed, and performance characteristics of components and systems are modeled using modern computational methods. Applications include overall design of conventional Rankine power systems and may also include design of nuclear, solar, wind, wave, thermoelectric, and geothermal energy systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4273 Experimental Fluid Dynamics
Prerequisites: Grades of "C" or higher in MAE 3333 and (MAE 3113 or [ENGR 2421 and ENSC 3231]).
Description: Experimental study of basic and applied fluid dynamics systems with comparisons to analytical predictions. Fluid dynamics instrumentation, digital data acquisition and processing, design of facilities and experiments, technical report writing and design project with experimental verification.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4283 Aerospace Vehicle Stability and Control
Prerequisites: Grades of "C" or higher in MAE 3253 and MAE 3724. Aerospace Engineering majors only.
Description: Motion and control of aerospace vehicles. Derivation of equations of motion for aircraft and spacecraft. Aerodynamic stability derivatives. Static and dynamic aircraft stability and control. Handling qualities. Satellite orbital and attitude dynamics. Satellite attitude control. Design experience for stability and control in aeronautical and astronautical vehicles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4313 Advanced Processing of Engineered Materials
Prerequisites: Grades of "C" or higher in ENSC 3313.
Description: Introduction of novel processing methods for a range of engineered materials, such as electro-slag remelting, vacuum melting, melting to remove tramp elements, precision casting, sintering, hot-pressing, directional solidification, mechanical alloying, liquid infiltration, net-shaped finishing, superplastic forming, sol-gel processing, float glass process, tape laying, microwave processing, laser processing, CVD and PVD, sputtering, ion plating, ultraprecision machining and grinding, polishing and lapping, multilayer coatings, Czhochralski single crystal growth, processing of nanocrystalline materials, engineered surfaces and surface modification, and layer processing for electronic materials.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4333 Mechanical Metallurgy
Prerequisites: Grades of "C" or higher in ENSC 3313 and (MAE 3113 or ENGR 2421).
Description: Mechanical deformation processes and strengthening mechanisms in engineering materials. Material failure modes including creep, fatigue, stress corrosion, ductile and brittle fractures.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 4342 Design Projects I
Prerequisites: Grades of "C" or higher in MAE 3233 and MAE 3324 and (MAE 3113 or [ENGR 2421 and two courses from the following list: ENSC 2141, ENSC 2411, ENSC 3231, ENSC 3311]).
Description: Two-semester design project with team format. Projects are sponsored by a company, agency, or individual. Team members work with sponsors and faculty who serve as mentors in fields related to their topics. Students complete oral presentations, progress reports, and create a professional log book to document their activities and contributions. Topics include safety, patent law, product liability, report writing, and scheduling.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4344 Design Projects
Prerequisites: Grades of "C" or higher in MAE 3324 and MAE 3524 and MAE 3724 and (MAE 3113 or [ENGR 2421 and two courses from the following list: ENSC 2141, ENSC 2411, ENSC 2611, ENSC 3231, ENSC 3311, ENSC 3431]).
Description: Students work in small teams on a semester-long design project sponsored by a company, agency, or individual. Team members work with mentors from sponsors and with faculty members in fields related to their topics. Presentations on safety, patent law, product liability, report writing, oral presentations, scheduling and ideation. Oral presentations, progress reports, and a professional log book documenting personal activity and contributions.
Credit hours: 4
Contact hours: Lab: 8 Contact: 8
Levels: Undergraduate
Schedule types: Lab
Department/School: Mech & Aerospace Engr

MAE 4352 Design Projects II
Prerequisites: A grade of "C" or higher in MAE 4342.
Description: Second of two-semester sequence of senior design courses.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4353 Mechanical Design II
Prerequisites: A grade of "C" or higher in MAE 3324.
Description: Design of power transmission systems, including belts, chains and gears. Selection and application of hydraulic and pneumatic components in machine design applications. Selection of electric motors, actuators, encoders, and related electromechanical components. Design practice in the form of short projects integrating segments of the course. Same course as BAE 4353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4354 Aerospace Systems Design for Mechanical Engineers
Prerequisites: Grades of "C" or higher in MAE 3324 and MAE 3524 and MAE 3724 and (MAE 3113 or [ENGR 2421 and two courses from the following list: ENSC 2141, ENSC 2411, ENSC 2611, ENSC 3231, ENSC 3311, ENSC 3431]).
Description: Multidisciplinary design of aerospace vehicles. Multidisciplinary teams that work on a semester-long project that includes the design, construction, and a flight test of an aerospace vehicle optimized for a given set of requirements. Teamwork, leadership and presentation skills emphasized.
Credit hours: 4
Contact hours: Lecture: 3 Contact: 5 Other: 2
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Mech & Aerospace Engr

MAE 4363 Advanced Methods in Design
Prerequisites: Grades of "C" or higher in MAE 3324 and (MAE 3113 or ENSC 2411 or ENSC 2611 or ENSC 2613 or ENSC 3311).
Description: Analytical and experimental techniques for the analysis of vibration, stress, force and motion. The finite element analysis method is introduced. Strain gages, photoelasticity, force gages, deflection gages, accelerometers and other transducers and methods are used in the laboratory. Projects involve the combined use of advanced analytical and experimental methods to realize optimal designs.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 4 Other: 2
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Mech & Aerospace Engr

MAE 4374 Aerospace System Design
Prerequisites: Grades of "C" or higher in MAE 4243 and MAE 4283 and MAE 4513 and (MAE 3113 or [ENGR 2421 and two courses from the following list: ENSC 2141, ENSC 2411, ENSC 2611, ENSC 3231, ENSC 3311, ENSC 3431]). Aerospace Engineering majors only.
Description: Multidisciplinary design of aerospace vehicles. Multidisciplinary teams that work on a semester-long project that includes the design, construction, and a flight test of an aerospace vehicle optimized for a given set of requirements. Teamwork, leadership and presentation skills emphasized.
Credit hours: 4
Contact hours: Lecture: 3 Contact: 4 Other: 1
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Mech & Aerospace Engr

MAE 4513 Aerospace Structures
Prerequisites: Grades of "C" or higher in MAE 3324 and MAE 3403 and MAE 3253. Aerospace Engineering majors only.
Description: Design and analysis of flight structures. Topics from two and three-dimensional elasticity. Behavior of composite materials. Stress and deflection analysis of thin-skinned stiffened structures. Introduction to the finite element method and its applicability in the design process.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4583 Corrosion
Prerequisites: A grade of "C" or better in ENSC 3313.
Description: Modern theory of corrosion and its applications in preventing and controlling corrosion. Thermodynamics, Pourbaix diagrams, kinetics, polarization, passivation, effect of stress, cathodic protection, alloying, coatings. Lab experiments to characterize, simulate, diagnose and control corrosion.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 4623 Biomechanics
Prerequisites: Grades of "C" or higher in MATH 2163 and MAE 3153 and MAE 3324.
Description: This course will provide students with the basic knowledge necessary to conduct biomechanics investigations, design implants and prosthetics, and interact with other medical professionals. Covering a wide selection of topics ranging from cell to whole-body mechanics and behaviors. Specific topics will be: cellular biomechanics, bone biomechanics and fracture, muscle biomechanics and injuries, physiological functions, human motion analysis, biomaterials and implants design, prosthetics design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4703 Design of Indoor Environmental Systems
Prerequisites: A grade of "C" or higher in MAE 3524.
Description: Design of heating, ventilating and air conditioning systems. Calculation of heating and cooling loads.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4713 Thermal Systems Realization
Prerequisites: A grade of "C" or higher in MAE 3524.
Description: This course will develop the tools required to design, analyze, and improve thermal energy systems. There will be an emphasis on practical understanding and detailed analysis techniques for system components, integration, and design. Some topics included are: the vapor compression cycle (for refrigeration and heat pump applications); compressor and heat exchanger analysis; and waste-heat recovery topics including Organic Rankine Cycles (ORC).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4723 Refrigeration Systems Design
Prerequisites: A grade of "C" or higher in MAE 3524.
Description: This course covers the modeling, analysis, and design of vapor compression refrigeration systems applied to air-conditioning and refrigeration applications. There will be an emphasis on practical understanding of components, system integration, and system design. This includes analysis and selection of compressors, heat exchangers and expansion devices as well as the integration of these components into system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 4733 Mechatronics Design
Prerequisites: Grades of "C" or higher in MAE 3153 and MAE 3403 and (MAE 3113 or [ENGR 2421 and ENSC 2411]).
Description: Design of mechanical and electrical components, including sensors and actuators into an integrated environment using microcontrollers. Software design using an easy-to-program microcontroller embodies the importance of software implementation into the overall engineering system. Design practice with given design projects to build up skills plus an open-ended term design project of the student's choosing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5000 Master's Thesis
Prerequisites: Graduate standing in MAE and consent of student's adviser.
Description: A student studying for a master's degree who elects to write a thesis must enroll in this course. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Mech & Aerospace Engr

MAE 5003 Advanced Biomaterials Science and Engineering
Prerequisites: Graduate standing or consent of instructor.
Description: Engineering issue that are implicit in understanding the interactions of living tissue and processed materials will be introduced. Emphasis is on identifying the processes in which cells interact with surfaces and particulate matter and the outcome of these interactions. Highlighted biological responses will include inflammation and coagulation. Also, biomaterial issues related to drug delivery and tissue engineering will be discussed. Same course as CHE 5263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5010 Mechanical and Aerospace Engineering Projects
Description: Project in research assigned by the student's advisor. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Mech & Aerospace Engr

MAE 5013 Physiological System Analysis for Engineers
Prerequisites: Graduate standing or consent of instructor.
Description: Introduce the basic physiology concepts used widely in biomedical engineering research; and introduce and develop engineering concepts and approaches for quantitative analysis of physiological systems. Engineering principles of mechanical properties of various tissue and organ systems under normal and diseased conditions. Same course as CHE 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5020 Special Offerings
Prerequisites: Graduate standing or consent of instructor.
Description: This course will be used as a temporary number for new graduate course offerings or special one-time only graduate course offerings. Repeat credit may be earned with different course subtitles assigned. Offered for 3 credit hours and no set maximum of credit hours obtained.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5023 Advanced Biofluid Mechanics
Prerequisites: Graduate standing or MAE 3233 (or equivalent).
Description: From sub-cellular to the organ level, life is supported by mass transfer processes, which encompass everything from free diffusion to the convection of bulk fluids. Therefore, to understand the body's functions, it is necessary to apply the fundamental fluid mechanics and heat transfer laws to physiological systems. Special emphasis will be placed on different length scales in physiological system, biorheology, conservation laws, mechanical coupling to vessel deformation and relevant physiology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5030 Engineering Practice
Prerequisites: Graduate standing in MAE and consent of student's adviser.
Description: Solution of real-life engineering design and development problems in an actual or simulated industrial environment. Activities include application of design and testing procedures, economic evaluation and periodic oral and written reporting on one or more assigned problems. Activities must be approved in advance by the adviser. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Mech & Aerospace Engr

MAE 5033 Advanced Biomedical Engineering
Prerequisites: Consent of instructor.
Description: Principles and engineering analysis of biomedical processes. Artificial organs, biomaterials, tissue engineering, transport in biological systems, biomedical imaging and drug delivery systems. Same course as CHE 5293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5053 Design of Engineering Experiments
Prerequisites: Graduate standing.
Description: The purpose of this course is to teach graduate students how to apply statistical methods to the solution of biological and engineering problems. They will learn how to use statistical methods to design experiments, present and analyze experimental data.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5063 Soft Tissue Mechanics
Prerequisites: MAE 3324 or an equivalent course with the consent of the instructor.
Description: Introduction to the most commonly used computational techniques for investigating and analyzing the behavior of biological soft tissues. Application of computational methods such as elasticity, viscoelasticity, and poroelasticity for numerically modeling the properties of biomaterials.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5073 Advanced Mechanical Vibrations
Prerequisites: MAE 4063 or consent of instructor.
Description: Analysis of nonlinear vibrations, classical analysis of continuous systems and numerical methods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5080 Fundamental Topics
Prerequisites: Graduate standing or consent of instructor.
Description: Fundamental topics that are typically introduced in the undergraduate senior year curriculum with additional depth and breadth commensurate with the graduate program. Repeat credit may be earned with different course subtitles assigned. Offered for 3 credit hours, maximum of 9 credit hours allowed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5083 Engineering Acoustics
Prerequisites: Graduate standing or consent of instructor.
Description: Acoustical analysis and measurement techniques, with emphasis on design applications for noise and vibration control in machinery and in buildings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5093 Numerical Engineering Analysis
Prerequisites: Undergraduate course in computer programming and consent of professor.
Description: Practical digital methods for obtaining steady-state and transient solutions to lumped and distributed mechanical, fluid and thermal problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5103 Advanced Dynamics
Prerequisites: Graduate standing or consent of instructor; ENSC 2123, MAE 3013 and MAE 3724.
Description: This course will address the effects of forces on the motion of a body or system of bodies to solve real-world engineering problems. It will emphasize the tools of analytical dynamics to develop mathematical models that describe the dynamics of particles, rigid bodies, and systems of particles or rigid bodies. The course will also address the formulation of equations of motion for complex mechanical systems and computational methods for solving these equations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5113 Diffraction in Materials
Prerequisites: Graduate standing or consent of instructor.
Description: Introduction to crystallography and diffraction with an emphasis on X-Ray diffraction, some exposure to Neutron diffraction, radiography and tomography. Applications will focus on mechanical properties measurements. New methods will be surveyed with an emphasis on current research. Same course as MSE 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5123 Advanced Material Removal Processes
Prerequisites: ENSC 3313 and MAE 3123 and graduate standing or consent of instructor.
Description: Understanding the fundamental principles and practice (mechanics and material aspects) of machining and grinding of materials. Historical aspects; physics of metal cutting, mechanics of machining (orthogonal and oblique); shear stress and shear strain in machining, dynamometry; tool materials, tool wear, tool life, and machinability; vibrations in machining; thermal aspects of machining, cutting fluids; economics; surface finish accuracy and surface integrity, and grinding.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5133 Mechanical Behavior of Materials
Prerequisites: ENSC 3313 or equivalent.
Description: A unified approach to the behavior and response of engineering materials to applied loads. Mechanical and metallurgical fundamentals of deformation processes. Spatial scales of atomic physics, micromechanics and continuum mechanics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5143 Tribology
Prerequisites: Graduate standing or consent of instructor.
Description: The principles of tribology. Definition of tribology, contact of solids, surface topography, real area of contact, friction of various materials, basic mechanisms of friction, mechanisms of wear (adhesion, abrasion, fatigue, erosion, and fretting), hardness of solids, frictional heating and surface temperatures, material properties that influence surface interactions, surface roughness measurement, surface integrity residual stresses and subsurface deformation, application of tribology to manufacturing, wear resistant materials, wear-resistant coatings, experimental methods in tribology, surface analytical tools in tribology, scanning tunneling microscopy/atomic force microscopy, wear monitoring and wear prevention, and systems approach to tribology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5153 Precision Engineering I
Prerequisites: Graduate standing or consent of instructor.
Description: An integrated approach to underlying engineering principles governing product and process designs requiring accuracies typically better than 1 part in 106. Design and control of precision machines and instruments, dimensional and surface metrology, scanning probe microscopy, ultra-precision machining and grinding, and precision assembly.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5163 Precision Manufacturing Process
Prerequisites: MAE 3123 or equivalent.
Description: Introduction to precision manufacturing, design principle of precision machine tools and source of errors, diamond turning and milling, grinding, polishing and lapping, sensors for precision manufacturing, precision manufacturing applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5173 Biomimetics in Engineering
Prerequisites: Graduate standing or consent of instructor.
Description: Nature has developed processes, techniques, and materials that function optimally from the nanoscale to the macroscale. The goal is to introduce methods and techniques derived from Nature and used to solve engineering and research problems. This course will provide students with the most common nature-derived concepts used in engineering. Relevant techniques will then be applied to each student's research project.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5183 Nanostructured Materials
Prerequisites: Graduate standing and basic undergraduate materials science course or equivalent.
Description: Size and shape dependence of material properties at the nanoscale. Interaction, surface energy, functionalization, binding, and immobilization of nanostructures. Top-down and bottom-up nanofabrication, atomic processes and self assembly. Lithography, thin fills, functional coating, Langmuir-Blodgett films, layer-by-layer growth. Properties, applications and synthesis of well-studied building blocks; quantum dots (semiconductor nanocrystals), carbon nanostructures (nanotubes and fullerenes), semiconductor nanowires, metal nanoparticles and nanowires.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5193 Computational Biomechanics and BioRobotics
Prerequisites: Graduate standing or consent of instructor; MATH 2233 and ENSC 2123.
Description: Introduction to human anatomy, skeletal and musculoskeletal modeling, human modeling packages, kinematics and dynamics of human system, posture and motion predictions, digital human modeling, tissue biomechanics, optimization theory and applications in human modeling, rehabilitation robots, exoskeleton, human-robot interaction, and learning-based human-robot control.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5213 Engineering Plasticity
Prerequisites: Graduate standing or consent of instructor.
Description: This course will present the fundamentals of the continuum theory of plasticity applicable in analysis and design of materials forming processes. The following topics will be covered: Yielding, Stress and Strain, Isotropic Yield Criteria, Work Principles, Anisotropic Plasticity, Effects of Strain Hardening and Strain-Rate Dependence, Defect Analysis, Effects of Pressure and Sign of Stress State, Plasticity Tests.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5223 Mechanics of Bonds
Prerequisites: Graduate standing or consent of instructor.
Description: The course will focus on the principles of mechanics of bond (adhesion) between the materials in relation to the design, fabrication and testing of bonds. Especially, the contents will focus attention to adhesive bonding.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5233 Advanced Fluid Dynamics I
Prerequisites: ENSC 3233.
Description: Introduction to fluid flows. Governing equations for mass, momentum and energy. Exact solutions of Navier-Stokes' equations. Dimensional analysis and similitude. Potential flows. Boundary layer theory. Low Reynolds number flows. Introduction to vorticity dynamics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5243 Micro Flows
Prerequisites: Graduate standing or consent of instructor.
Description: Fundamentals and simulation of micro flows including governing equation, slip models, shear- and pressure-driven micro flows. Thermal effects in micro scales. Applications; MEMS and micro propulsion. Numerical methods for continuum simulation and atomistic simulation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5253 Multiphase Flow
Prerequisites: Graduate standing.
Description: Theory, methods and practical experience for studying complex transient multiphase flows: basic concepts and definition, dynamics of bubbles, drops and rigid particles, gas-liquid transport in ducts, fluid-solid transport in ducts, aerosol and spray systems, foam, fluidization, particle separation systems multiphase flow in porous media, breakup of liquid sheets and jets, modeling, advanced experimental techniques for multiphase flow.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5263 Combustion
Prerequisites: Graduate standing or consent of instructor.
Description: Chemical thermodynamics, chemical kinetics, conservation equations for reacting systems, premixed laminar flames, diffusion flames, turbulent flames, mechanism reduction and chemistry solvers, combustion diagnostics, new combustion technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5273 Advanced Fluid Dynamics II
Prerequisites: MAE 5233.
Description: Application of advanced fundamental concepts and methods to vorticity dynamics, gravity waves, instability, and an introduction to turbulence. Specialty topics (e.g. geophysical flows, compressible flows, biofluids) will also be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5283 Data Assimiliation in Science and Engineering
Prerequisites: (ENGR 1412 or equivalent course in computer programming and knowledge of scientific computing) and (MAE 3013 or equivalent course in differential equation and engineering mathematics) and (MAE 3403 or equivalent undergraduate course in computational methods).
Description: Data assimilation is a well-established scientific discipline that combines computational models observations. It is geoscience terminology and refers to the estimation of the state of a physical system given a model and measurements. In other words, it is the process of fitting models to data. In engineering fields the terms filtering, estimation, and smoothing are often used. In the last decades data assimilation has gained popularity in many computational disciplines at both universities and research centers. In this course, starting from mathematical preliminaries (e.g., numerical linear algebra, model reduction, optimization techniques, etc), common methods of data assimilation (both sequential and variational methods) are introduced and derived in the context of both variational and estimation theory with emphasis on computational aspects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5303 Advanced Space Propulsion and Power
Prerequisites: MAE 4243 (or equivalent).
Description: Advanced analysis of chemical, nuclear, electric and solar thermal rockets with a focus on solid, liquid and hybrid rocket propulsion. Progression from fundamentals to design and analysis of complete rocket systems, including design case studies. Design, build, test and evaluation of chemical rocket components.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5313 Autopilot Design and Test
Prerequisites: Graduate standing or consent of instructor; MAE 3403 and MAE 3724 and MAE 4053 and MAE 4283.
Description: Basic theory, hardware, and implementation, and test techniques for contemporary autopilot design, with a particular example on unmanned aerial systems. Flight mechanics modeling and simulation, basic sensor modeling and usage, filtering and state estimation, and feedback strategies are discussed. Typical computing hardware platforms and their limitations for autopilots usage are discussed. General purpose computing hardware is extended to field UAV platforms. Validation techniques are introduced, including an introduction to formal methods verification and a more thorough exercise in operational hardware testing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5343 Advanced Aero Propulsion and Power
Prerequisites: MAE 4243; Graduate Standing or Consent of Instructor.
Description: Advanced analysis of aircraft engines. Preliminary aerodynamic and structural design of major engine components including inlets, compressors, combustors, turbines, mixers, afterburners, and nozzles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5353 Testing, Control, and Simulation of Thermal Systems
Prerequisites: Graduate standing or consent of instructor; MAE 3524 or equivalent.
Description: This course introduces the usage of computer software for the simulation and experimental testing of thermal systems and their components. Specifications of sensors and test plans based on uncertainty calculation as well as HVAC controls are introduced.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 5363 Advanced Analytical Electron Microscopy
Prerequisites: Graduate standing or consent of instructor.
Description: Fundamentals of electron microscopy and the associated characterization techniques; functions of the SEM/TEM and how it works; basic analytical microscopy techniques (imaging, diffraction, EDS, EELS) and data interpretation to develop an understanding of structure-property correlations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5383 Practical Computational Fluid Dynamics
Prerequisites: Graduate standing or consent of instructor.
Description: An introduction to the practical use of Computational Fluid Dynamics (CFD) commercial software. Student will be introduced to the concepts governing CFD, but the majority of the class will be utilized in learning the use of a popular commercial code. Same course as MET 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5403 Computer-Aided Analysis and Design
Prerequisites: Undergraduate course in computer programming and consent of professor.
Description: Theory, application and implementation of digital-computer-oriented algorithms for the synthesis, simulation, analysis and design of engineering systems. Advanced FORTRAN methods for optimization, simulation and data analysis. Implementation of these methods uses program libraries, batch processing, remote terminals and graphic display units.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5413 Optimal Control
Prerequisites: MAE 5713 or ECEN 5713.
Description: Optimal control theory for modern systems design. Specification of optimum performance indices. Dynamic programming, calculus of variations and Pontryagin's minimum principle. Iterative numerical techniques for trajectory optimization. Same course as ECEN 5413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5433 Robotics, Kinematics, Dynamics and Control
Prerequisites: MAE 4053 or ECEN 4413 or consent of instructor.
Description: Kinematic and dynamic analysis of robot manipulators. Inverse kinematics, motion planning and trajectory generation. Industrial practice in robot servo control. Dynamics and control in the presence of constraints. Actuators and sensors. Force sensors and vision systems. Robotic force control and its applications in industry. Passivity based control algorithms. Advanced control techniques for motion and force control. Same course as ECEN 5433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5463 Nonlinear System Analysis and Control
Prerequisites: MAE 4053 or ECEN 4413.
Description: Failure of superposition of effects; phase-plane analysis; limit-cycles; Lyapunov stability; hyperstability and input-output stability; controllability and observability of nonlinear systems; feedback linearization; robust nonlinear control system design. Same course as ECEN 5463. Previously offered as MAE 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5473 Digital Control Systems
Prerequisites: MAE 4053 or ECEN 4413.
Description: Input output and state space representations of linear discrete-time systems. Approximate methods in discrete-time representation. Stability methods. Controllability, observability, state estimation, and parameter identification. Design and analysis of feedback control system using frequency-domain and state-space methods. Introduction to optimal control. Same course as ECEN 5473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5483 Advanced Mechatronics Design
Prerequisites: MAE 4733 or similar course and consent of instructor.
Description: Continuation of topics covered in the undergraduate course MAE 4733 Mechatronics Design. Optimizing C programming code for microcontrollers using the assembly language instruction set, RS-232 microcontroller communication protocol, Controller Area Network (CAN) communication protocol plus hands-on CAN bus development boards, advanced topics which could include but are not limited to sensor design, real time operating systems, and advanced communication protocols. Same course as ECEN 5483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5503 Mechanics of Advanced Composites for Structural Design
Prerequisites: ENSC 2113, ENSC 2143 or consent of instructor.
Description: Basic principles governing the micro-mechanics of a lamina, and the macro-mechanics of a laminate are discussed in detail. Analysis of continuous fiber, short-fiber, and woven-fiber polymer matrix composites. A computer program for an analysis and design of composite laminates is developed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5513 Stochastic Systems
Prerequisites: ECEN 3513 and 4503 or STAT 4033 or MAE 4053 or MAE 4063 or consent of instructor.
Description: Theory and applications involving probability, random variables, functions of random variables, and stochastic processes, including Gaussian and Markov processes. Correlation, power spectral density, and non-stationary random processes. Response of linear systems to stochastic processes. State-space formulation and covariance analysis. Same course as ECEN 5513. Previously offered as MAE 6063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5523 Estimation Theory
Prerequisites: MAE 5513 or ECEN 5513.
Description: Stochastic model development, parameter estimation and state estimation. The linear model, model order determination, least squares, estimation, maximum likelihood estimation, Bayesian estimation. Gaussian random vectors, estimation in linear and Gaussian models, state estimation, the Kalman filter, prediction and smoothing. Same course as ECEN 5523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5533 Theory of Elasticity
Prerequisites: Graduate standing or consent of instructor; MAE 3324 or equivalent.
Description: Basics of tensor calculus, field equations (strain-displacement, compatibility, equilibrium, and constitutive relation), solution of plane elastrostatics problems in cartesian and polar coordinates, potential function formulation, introduction to 3D problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5543 Modern Materials
Prerequisites: ENSC 3313.
Description: Properties, applications and recent innovations of structural engineering materials. Metals, ceramics, polymers and composites considered.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5553 Fatigue and Fracture Mechanics
Prerequisites: MAE 4333 or consent of instructor.
Description: The course provides an introduction to the mechanics of fracture of brittle and ductile materials and covers the basics of both linear-elastic fracture mechanics (LEFM) and elastic-plastic fracture mechanics (EPFM). Crack initiation and propagation is studied under quasi-static, dynamic, and cyclic loading conditions. Models are presented for time dependent fracture including creep and fatigue crack growth. Methods to experimentally determine fracture properties, based on relevant ASTM standards, are introduced. Same course as MSE 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5563 Finite Element Methods
Prerequisites: Graduate standing or consent of instructor.
Description: Introduction to the finite element method in mechanical engineering. Numerical and mathematical formulations including an introduction to variational methods. Computer applications in solid mechanics, heat transfer and fluid mechanics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5573 Continuum Mechanics
Prerequisites: Graduate standing of consent of instructor.
Description: Principles governing the mechanics of a continuum. Tensor calculus. Strain and kinematics of deformation. Conservation laws, stress and equilibrium. Constitutive equations of elastic, viscoelastic, and plastic solids. Solving boundary value problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5583 Corrosion Engineering
Prerequisites: ENSC 3313 or equivalent.
Description: Modern theory of corrosion and its applications in preventing or controlling corrosion damage economically and safely in service. Same course of MSE 5583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5593 Viscoelasticity
Prerequisites: Graduate standing or consent of instructor.
Description: Advanced stress analysis and constitutive modelling of time-dependent materials such as polymers or metals near their melting point. Overview of viscoelastic materials and applications. Experimental material characterization and thermodynamic foundation of the constitutive behavior. Time-temperature superposition principle for thermo-rheologically simple materials. Differential and integral formulation of basic rheological models.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5603 Stability of Structures
Prerequisites: Graduate standing or consent of instructor.
Description: Stability is a fundamental problem in solid mechanics, which is crucial to the safety of structures against collapse. The theory of stability is of great importance for structural engineering, aerospace engineering, nuclear engineering, etc. Elastic and non-elastic theories of stability will be discussed for structures such as columns, frames, thin-walled beams, plates and shells. Energy methods for discrete and continuous structures will also be discussed.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5633 Advanced Thermal Energy Systems Analysis
Prerequisites: MAE 3524 and MAE 3233; Graduate Standing or Consent of Instructor.
Description: This course will develop the tools required to design, analyze, and improve advanced thermal energy systems. There will be an emphasis on practical understanding of components, system integration, and system design. Some topics included are; improvements to the vapor compression cycle (for refrigeration and heat pump applications); compressor and heat exchanger analysis; heat-driven vapor compression cycles; waste-heat recovery topics including Organic Rankine Cycles (ORC) and expander analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5653 Refrigeration
Prerequisites: MAE 3524; Graduate Standing or Consent of Instructor.
Description: Thermal engineering of refrigeration and heat pump systems, vapor compression systems, absorption refrigeration cycles, cryogenics, compressors, heat exchangers, flow control devices, laboratory simulators and measurements, socio-economics and environmental impact of systems and refrigerants. A general-purpose computer software program is used for analysis and design of several refrigeration systems and components.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5663 Advanced Finite Element Analysis
Prerequisites: MAE 5563 or consent of instructor.
Description: Development of three-dimensional isoparametric solid elements using Lagrange and serendipity family of elements, solution of three-dimensional thermoelasticity problems, linear time dependent problems, variational formulation and computer implementation of structural dynamics analysis using implicitly operators, implementation of three-dimensional diffusion and heat transfer analysis, solution of a nonlinear system of equations, and finite element analysis using commercial software packages.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5673 Mechanics of Fracture, Contact and Friction
Prerequisites: Graduate standing or consent of instructor.
Description: Rigorous derivation and presentation of the equations of fracture mechanics, contact and friction. Equations of solid mechanics and mathematical preliminaries, elastic stress field near a crack tip, stress intensity factors, fracture toughness, Griffith solution and J-integral, elastic-plastic fracture, fatigue, Dugdale model and cohesive zone laws, experimental techniques in fracture mechanics, contact mechanics, friction modeling. More advanced topics and projects will be chosen from interfacial crack growth, subsonic and intersonic dynamic fracture, rate- and state-dependent friction laws, fracture and friction at the small scales (nanomechanics), and finite-element analysis using commercial packages.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5683 Thermodynamics and Thermostatistics of Materials
Prerequisites: ENSC 3313 or equivalent.
Description: Notions of energy, entropy, equilibrium, macrostates, and microstates and their relation to material processes and properties. Deriving material properties from equations of state: Maxwell relations. Statistical thermodynamics: predicting material properties from microstates. Partition function. Phase transformations. Thermodynamics of surfaces and defects. Electrochemistry. Same course as MSE 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5693 Phase Transformations in Materials
Prerequisites: Graduate standing or consent of instructor.
Description: Principles of phase transformations in material. Structure of materials, phase diagrams, diffusion, solidification, and diffusional and diffusionless transformations will be covered. Recent developments in materials research relevant to phase transformations. Same course as MSE 5693.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5703 Optimization Applications
Prerequisites: Graduate standing.
Description: A survey of various methods of unconstrained and constrained linear and non-linear optimization. Applications of these methodologies using hand-worked examples and available software packages. Intended for engineering and science students. Same course as CHE 5703, ECEN 5703 & IEM 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5713 Linear Systems
Prerequisites: Graduate standing or consent of instructor.
Description: Introduction to the fundamental theory of finite-dimensional linear systems with emphasis on the state-space representation. Mathematical representations of systems; linear dynamic solutions; controllability, observability, and stability; linearization and realization theory; and state feedback and state observer. Same course as ECEN 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5733 Neural Networks
Prerequisites: Graduate standing.
Description: Introduction to mathematical analysis of networks and learning rules, and on the application of neural networks to certain engineering problems image and signal processing and control systems. Same course as CHE 5733 & ECEN 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5753 Advanced Experimental Mechanics of Solids
Prerequisites: MAE 5573 or consent of instructor.
Description: Application of advanced experimental mechanics techniques to investigate and characterize response of solid materials. Course material includes use of at-a-point and full-field techniques, characterizing rate- and time-dependent material response, and techniques for finite deformation.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 5763 Wave Motion and Vibration of Continuous Media
Prerequisites: MAE 5573 or consent of instructor.
Description: Fundamentals of the formulation and solution of the problem of wave motion and vibration in continuous media. Propagation of stress waves and the implication of high-rate loading on mechanics problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5773 Intelligent Systems
Prerequisites: MAE 5733 or ECEN 5733.
Description: Introduction to the state-of-the art intelligent control and system successfully deployed to industrial and defense applications. Emerging intelligent algorithms (e.g., bottom-up, top-down, seminotics); reinforcement learning and hybrid systems; and case studies and design projects. Same course as ECEN 5773.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5783 Principles of Autonomous Decision Making
Description: This course will provide a detailed overview of the fundamental principles of autonomous decision making and their applications to various engineering and computer-science domains. This course will survey popular and emerging techniques in reasoning and perception as well as optimal decision making methodologies. Learning and reasoning paradigms include support vector machines, Gaussian Processes, and Bayesian Nonparametric Learning. Optimal decision making techniques include Markov Decision Processes, Planning and reinforcement learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5803 Advanced Thermodynamics I
Prerequisites: Graduate standing or consent of instructor.
Description: A rigorous examination of the fundamental principles of engineering thermodynamics to include the First Law, Second Law and availability, thermodynamics equations of state for single phase and multi-phase systems, chemically reactive systems, and equilibrium. A general purpose computer software program is used for examination of case studies of thermodynamic processes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5813 Intermediate Heat Transfer
Prerequisites: MAE 3233 or equivalent.
Description: Continuation of the topics covered in the undergraduate heat transfer course (MAE 3233) with the addition of mass transfer. This course covers problems of heat and mass transfer in greater depth and complexity than is done in the undergraduate heat transfer course and incorporates the subjects that are not included or are treated lightly in that course. Analysis will be given greater emphasis than the use of correlations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5823 Radiation Heat Transfer
Prerequisites: MAE 3233 or equivalent and graduate standing or consent of instructor.
Description: The mechanism of the transfer of energy by thermal radiation; radiant properties of materials, energy transfer prediction methods and solar energy topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5833 Transient Simulation of Thermal Systems
Prerequisites: Graduate Standing or consent of instructor.
Description: This course provides an introduction to the transient simulation of building thermal systems. Learned material is reinforced in lab sections as well as in a semester project.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 5843 Conduction Heat Transfer
Prerequisites: ENSC 3233.
Description: Advanced heat transfer analysis and design, with primary emphasis on conduction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5853 Computational Heat Transfer
Prerequisites: MAE 3233, graduate standing, knowledge of FORTRAN.
Description: Computational techniques for the solution of two-dimensional heat transfer, fluid flow and related processes in problems of practical interest. A general-purpose computer program used to demonstrate the capabilities of the numerical method through a wide variety of engineering problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5863 Building Heat Transfer and Simulation
Prerequisites: ENSC 3233 and MAE 3524 and MAE 3233; Graduate Standing or Consent of Instructor.
Description: Conduction, convection and radiation heat transfer applied to building thermal simulation. Solar radiation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5873 Advanced Indoor Environmental Systems
Prerequisites: MAE 4703.
Description: Heating, air-conditioning, ventilation and refrigeration systems. System and component analysis, design and simulation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5913 Advanced Aerodynamics
Prerequisites: ENSC 3233 or equivalent.
Description: Aerodynamics of the subsonic, transonic, supersonic, and hypersonic flow regimes. Derivation of governing equations and fundamental principles. Analytical and computational analysis methods. Recent developments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5923 Guidance and Control of Aerospace Vehicles
Prerequisites: Graduate standing or consent of instructor.
Description: Navigation, guidance and attitude control of aircraft, launch vehicles and spacecraft. Inertial navigation mechanizations and error analysis. Stability augmentation systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5933 Aeroelasticity
Prerequisites: Graduate standing or consent of instructor.
Description: Interaction between fluid dynamic, inertial and elastic forces. Development of analytical and computational methods for analysis. Application to a broad range of problems in engineering.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5943 Unsteady Aerodynamics and Aeroacoustics
Prerequisites: ENSC 3233 or equivalent.
Description: Development of governing fluid dynamic equations for unsteady flows; linear unsteady aerodynamics for isolated and cascaded lifting surfaces; acoustics in moving media; three-dimensional duct acoustics; sound generation from isolated airfoils, cascaded airfoils, rotor-stator interactions, multiple pure-tone sources, propellers and jets.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5953 Aerospace Systems Engineering
Prerequisites: MAE 3253 or equivalent.
Description: Aircraft and spacecraft design from a systems perspective, covering basic systems engineering, cost and weight estimation, basic vehicle performance and trade study analysis, safety and reliability, lifecycle analysis, subsystem integration, risk analysis and management, system realization, and multi-disciplinary optimization (MDO). Additional topics include requirements identification and development, and program planning and control.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5963 Unmanned Aerial Systems Design and Analysis
Prerequisites: Graduate standing or permission of instructor; MAE 5313.
Description: This course covers concepts related to design and operation of unmanned systems focusing on unmanned aircraft, including remotely piloted and autonomous vehicles. History of unmanned systems. Design of unmanned air systems including concepts of operations, communications, payloads, control and navigation, multiple air vehicle architectures, cooperative control and ISR. Design requirements for unmanned versus manned vehicles. Operation in conflicted airspace. Aspects of other unmanned systems, including ground, surface, underwater and space vehicles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5973 Unmanned Aerial Systems Propulsion
Prerequisites: Graduate standing or permission of instructor.
Description: This course will cover propulsion topics used on Unmanned Aerial Systems (UAS). These will include: Historical perspective on UAS propulsion systems; Classification of propulsion types; Propulsion requirements for UAV; Propeller performance and design; Internal combustion engine; Heavy-Fuel ICE; ICE Muffler design; Electric motor; Hybrid-Electric engine; Fuel Cell engine; Flapping Wing propulsion; Jet engine; Propulsion system integration and installation effects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 5983 Aircraft Certification and Test
Prerequisites: Graduate standing or consent of instructor.
Description: Exploration of the major engineering processes for airworthiness certification of manned and unmanned aircraft. Assessment of civil and military airworthiness regulations and their impact on certification program management and testing. Development of foundational concepts and processes for laboratory, ground and flight testing for airworthiness.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mech & Aerospace Engr

MAE 5993 Microstructural Mechanics
Prerequisites: Graduate standing or consent of instructor.
Description: Build a framework to understand the various microstructures of materials with their respective roles in controlling mechanical properties. Grain size, orientation, surface facets, compositional gradients, and second or multiple phases, in combination with the three-dimensional arrangement of the various types of imperfections, together constitute the microstructure of a material. An emphasis will be placed on new research areas and exposure to methods for controlling and probing microstructures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6000 Doctoral Dissertation
Prerequisites: Admission to MAE PhD program and consent of the student's dissertation adviser.
Description: Independent research under the direct supervision of the student's doctoral dissertation adviser. Offered for variable credit, 1-15 credit hours, maximum of 42 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Mech & Aerospace Engr

MAE 6010 Advanced Study
Prerequisites: Approval of the student's advisory committee.
Description: Study and investigation under the supervision of a member of the faculty along lines of interest well advanced of and supported by the 5000-series courses. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Mech & Aerospace Engr

MAE 6123 Advanced Processing of Materials
Prerequisites: Graduate standing or consent of instructor.
Description: Rationale for non-traditional machining; various non-traditional machining processes, including electro-discharge machining, electro-chemical machining, plasma arc-, microwave-, and laser assisted processing, waterjet (abrasive) cutting, ultrasonic machining, chemical machining, thermal assisted processing and electron beam machining.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6133 Surface Mechanics
Prerequisites: Consent of instructor.
Description: Models and solutions basic to surface studies. Equations of continuum mechanics, thermal field solutions at sliding interfaces, elasticity, plasticity. Applications of solution techniques to surface, surface layer and interface phenomena.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6143 Thermal Analysis of Manufacturing Processes
Prerequisites: Graduate standing and consent of instructor.
Description: Thermal analysis of various moving heat source problems encountered in a variety of manufacturing processes, including machining, grinding, polishing, casting, welding, energy beam cutting and other tribological applications such as meshing of gears, cams, bearings. Analysis of both transient and steady state conditions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6233 Turbulent Fluid Dynamics
Prerequisites: MAE 5233.
Description: Isotropic turbulence, turbulent wakes and jets, bound turbulent shear flows, transition, hydrodynamic stability and integral calculation methods for turbulent boundary layers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6243 Detonation Combustion for Aerospace Propulsion
Prerequisites: MAE 5303 or MAE 5343
Description: Advanced combustion topic applicable to aircraft and space propulsion. Material includes chemical kinetics, thermodynamics and compressible flow analysis related to pressure gain combustors. Scope includes fundamentals of detonation cycle analysis and detonation engine design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6253 Configuration Aerodynamics
Description: Configuration aerodynamics concerns the evaluation of lifting surfaces and arbitrary configurations of lifting surfaces to determine the overall aerodynamic forces and moments and effects on the stability and performance of the flight vehicle. Review basic 2-D aerodynamic theory for flow around an airfoil, before covering the development of 3-D wing theory. Implement a lifting-line code to solve the lift distribution for arbitrary wing planforms, and study the effects of geometric twist. The potential flow theory behind vortex-lattice methods are covered.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6263 Computational Fluid Dynamics
Description: Use of computational fluid dynamics (CFD) as a research tool. Principles and techniques for solving fluid dynamics and heat transfer problems using numerical methods. Topics include the forms of the Navier-Stokes equations, finite difference and finite volume methods, mesh generation, numerical discretization, time integration, linear solvers, and algorithm development for compressible and incompressible flows. Additional topics include postprocessing with Tecplot and ParaView, basic parallel computing (MPI), and an introduction to turbulent flows using DNS, LES, and RANS.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6293 Geophysical Fluid Dynamics
Prerequisites: MAE 5233.
Description: Development of governing fluid dynamic equations for high-Reynolds number flows, including their stability, their waves, and the influence of rotating and stratification as applied to geophysical and astro-physical fluid dynamics. Examples of problems studies include vortex dynamics in planetary atmospheres and protoplanetary disks, jet streams, and waves (Rossby, Poincare, inertial, internal gravity, and Kelvin) in the ocean and atmosphere.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6313 Atmospheric Flight Control
Prerequisites: (MAE 4283 and MAE 4053) or (MAE/ECEN 5713 or MAE/ECEN 5473 or MAE 5923) or equivalent. Graduate standing or consent of instructor.
Description: Application of modern multivariable control and estimation techniques to aerospace flight vehicles. Fundamental tradeoffs between controller complexity and performance requirements, and translation of handing quality specifications into requirements for control system designs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6423 System Identification
Prerequisites: MAE 5473 or MAE 5713 or ECEN 5473 or ECEN 5713.
Description: Linear and nonlinear system modeling of random systems. Models of linear time-invariant systems, nonparametric methods and preliminary model development, parameter estimation methods, convergence and consistency, asymptotic distributions of parameter estimates, nonlinear modeling. Same course as ECEN 6423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6453 Adaptive Control
Prerequisites: MAE 5473 or ECEN 5473 or ECEN 5713 or MAE 5713.
Description: Analysis and design of control techniques which modify their performance to adapt to changes in system operation. Review of systems analysis techniques, including state variable representations, linearization, discretization, covariance analysis, stability, and linear quadratic gaussian design. On-line parameter estimation, model reference adaptive systems, self-tuning regulators, stable adaptive systems. Same course as ECEN 6453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6463 Advances in Nonlinear Control
Prerequisites: MAE 5463 or ECEN 5463.
Description: Introduction to vector fields and Lie algebra: controllability and observability of nonlinear systems; local decompositions; input-output and state-space representation on nonlinear systems; feedback linearization; controlled invariance and distribution; control of Hamiltonian systems. Same course as ECEN 6463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6483 Robust Multivariate Control Systems
Prerequisites: MAE 5713 or ECEN 5713.
Description: Introduction to multivariable systems: SISO robustness vs. MIMO robustness; multivariable system poles and zeros; MIMO transfer functions; multivariable frequency response analysis; multivariable Nyquist theorem; performance specifications; stability of feedback systems; linear fractional transformations (LFT's); parameterization of all stabilizing controllers; structured singular value; algebraic ricatti equations; H2 optimal control; H-infinity controller design. Same course as ECEN 6483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

MAE 6843 Convection Heat Transfer
Prerequisites: MAE 5233 or equivalent.
Description: Advanced convective heat transfer in laminar and turbulent flows over external surfaces and inside channels. Heat transfer at high velocities, free convection boundary layers, and mass transfer.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mech & Aerospace Engr

Mechanical Engineering Tech (MET)

MET 1121 Technical Graphics
Prerequisites: A grade of "C" or better in ENGR 1332 or ENGR 1322.
Description: Visualization of 3-D objects, sketching, manual drafting of engineering drawings to ANSI standards, interpreting typical industrial drawings.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 1123 Technical Drawing and Basic CAD
Description: Sketching, manual drafting and CAD generation of engineering drawings to ANSI standards. Interpreting typical industrial drawings. Students with two years high school or one year practical ANSI drafting/CAD may substitute an advanced course in mechanical engineering technology with consent of their advisers. Previously offered as GENT 1153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 2103 Industrial Materials
Prerequisites: CHEM 1314 or CHEM 1215 or CHEM 1414.
Description: A survey of the properties, characteristics and applications of metals, polymers, ceramics and other industrial materials. Terminology, concepts and principles involved in material selection, specification and processing. Laboratory activities include data collection and report generation, determination of material properties, and evaluation of material characteristics. Previously offered as GENT 1103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 2223 Geometric Dimensioning and Tolerancing with Computer-Aided Design
Prerequisites: A grade of “C” or better in (GENT 1153 or MET 1123) or a grade of “C” or better in (ENGR 1332 or equivalent) and MET 1121 (can be concurrent enrollment in MET 1121).
Description: Theory and application of Geometric Dimensioning and Tolerancing (GD&T) technique. Creation and analysis of tolerances for manufacturing with advanced computer-aided design (CAD) and engineering drawings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 2313 Fundamentals of Hydraulic Fluid Power
Prerequisites: A grade of "C" or better in ENSC 2113 or GENT 2323.
Description: Basic fluid power concepts. Standard hydraulic symbols, component design and application, fluid power system considerations, design, and operation. Previously offered as MPT 2313.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 3003 Dynamics
Prerequisites: A grade of "C" or better in GENT 2323 or ENSC 2113.
Description: Plane motion of particles and rigid bodies. Force-acceleration, work-energy, and impulse-momentum principles. Graphical analysis, mechanisms and vibrations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 3113 Basic Instrumentation
Prerequisites: A grade of "C" or better in MATH 2123 or MATH 2144, and GENT 3323 or ENSC 2143, and ENGR 2421.
Description: Data analysis. Theory, operational characteristics and application of transducers for measurement of strain, force, velocity, acceleration, displacement, time, frequency, temperature, pressure. Previously offered as MPT 3114.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 3313 Applied Fluid Mechanics
Prerequisites: A grade of "C" or better in (MATH 2123 or MATH 2144), (PHYS 1114 or PHYS 2014), and (GENT 2323 or ENSC 2113).
Description: Practical analysis of fluid systems including static forces, the Bernoulli and general energy equations, laminar and turbulent flows, measurements of flow and pressure, lift and drag, pumps, and fans. Previously offered as MPT 3313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 3343 Metallurgy and Polymers
Prerequisites: A grade of "C" or better in (CHEM 1215 or CHEM 1314 or CHEM 1414 or CHEM 1515).
Description: Provides an overview of common ferrous and nonferrous metals, metal crystal structures, grain development in metal, heat treating practices, and how these aspects impact a material’s characteristics. Polymer properties, an introduction to thermoplastics and thermosets, physical and mechanical properties, polymer structure and arrangement, manufacturing methods and common additives. Previously offered as MFGT 3343.
Credit hours: 3
Contact hours: Lecture: 3 Lab: 0 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 3433 Basic Thermodynamics
Prerequisites: A grade of "C" or better in (MATH 2123 or MATH 2144) and (PHYS 1114 or PHYS 2014).
Description: Basic scientific principles of energy and the behavior of substances as related to engines and systems. Gas laws, vapor cycles, and power cycles. Previously offered as MPT 3433 and GENT 3433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 3453 Heat Transfer
Prerequisites: A grade of "C" or better in (MATH 2144 or MATH 2123 and (PHYS 2014 or PHYS 1114).
Description: Conduction, convection, radiation, condensation, and boiling heat transfer. Heat exchangers. Prediction of heat transfer rates. Retardation and enhancement of heat transfer. Course previously offered as MPT 4433 and GENT 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 3543 Manufacturing Processes
Prerequisites: Grade of "C" or better in (MET 1123 or ENG 1332) and (MET 3343 or ENSC 3313).
Description: Manufacturing processes used to transform new materials including metals and non-metals into finished goods. Traditional and nontraditional manufacturing processes. Introduction to CAD/CAM. Basic process selection. Meteorology and measurement fundamentals. Previously offered as GENT 1223 and MET 1213.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 3803 Fundamentals of Mechatronics
Prerequisites: Grade of "C" or better in EET 3104 or EET 2635.
Description: Fundamentals of mechatronic systems and components. Different modelling approaches used for mechatronics systems, sensors and actuators, data acquisition and interfacing, signal conditioning, and PLCs. Previously offered as GENT 3503. Same course as EET 3803.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 4003 Machine Elements
Prerequisites: A grade of "C" or better in (MATH 2133 or MATH 2153) and (GENT 3323 or ENSC 2143).
Description: Applications of statics and strength to the design of machine components. Problems of choosing materials, impact and fatigue loading. May not be used for degree credit with MET 4003 or BAE 4224.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4023 Advanced Mechanical Computer-Aided Design
Prerequisites: A grade of "C" or better in MET 1123 or ENGR 1332 or equivalent.
Description: Computer-aided design methodologies and processes. State-of-the-art technologies and methodologies in 3D modeling and design processes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4033 Applied Vibration and Acoustics
Prerequisites: A grade of "C" or better in GENT 3323 or ENSC 2143.
Description: Free and forced vibration of mechanical systems with an emphasis on practical applications. Introduction to sound wave generation and propagation. Mechanical system design methods for noise and vibration mitigation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4050 Advanced Mechanical Design
Prerequisites: Junior standing and consent of instructor.
Description: Special problems in mechanical engineering technology. Previously offered as MFGT 4050 and MPT 4050. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Mater Mero Manuf Engineering

MET 4103 Senior Design I
Prerequisites: Grade of "C" or better in (MET 1123 or MET 1121) and ENSC 2143 and Senior Standing.
Description: First part of a two semester sequence for the MET capstone project. Focuses on finding and beginning a practical engineering design project. Includes selected topics in engineering design, project management, ethics, and intellectual property.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 4113 Practical Computational Fluid Dynamics
Prerequisites: A grade of "C" or better in MET 3313 or ENSC 3233 or MAE 3333.
Description: An introduction to the practical use of Computational Fluid Dynamics (CFD) commercial software. Students will be introduced to the concepts governing CFD, but the majority of the class will be utilized in learning the use of a popular commercial code. May not be used for degree credit with MET 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4123 Senior Design II
Prerequisites: A grade of "C" or better in MET 4103 and ENGL 3323. Must be taken in the immediately subsequent semester after completing MET 4103.
Description: Second part of a two semester sequence for the MET capstone project. Finishes work on the practical engineering design project begun in MET 4103. Includes selected topics in engineering design, project management, ethics, and intellectual property.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 4133 Interdisciplinary Design I
Prerequisites: A grade of "C" or better in (MET 1223 or MET 2223) and MET 4003 and permission of the instructor.
Description: First part of an interdisciplinary capstone project for engineering technology seniors. Conduct mechanical design, prototype development, and project management on practical engineering design project. Same course as MET 4103.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 4143 Interdisciplinary Design II
Prerequisites: A grade of "C" or better in (MET 1223 or MET 2223) and MET 4003 and permission of the instructor.
Description: Second part of an interdisciplinary capstone project for engineering technology seniors. Conduct mechanical design, prototype development, and project management on practical engineering design project. Same course as MET 4123.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 4173 Additive Manufacturing: Materials, Methods and Applications
Prerequisites: Junior or higher standing.
Description: Theory and practice of additive manufacturing, materials and their applications in various fields. Discuss their applications in product development, data visualization, rapid prototyping, and specialized manufacturing, with special emphasis on direct digital manufacturing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4203 Finite Element Methods
Prerequisites: A grade of "C" or better in GENT 3323 or ENSC 2143.
Description: Application of Finite Element Methods to machine component design. Problems involving stress, strain, temperature and vibration will be solved using state of the art Finite Element Software. May not be used for degree credit with MET 5203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4223 Geometric Dimensioning and Tolerancing
Prerequisites: A grade of “C” or better in MET 1123 or ENGR 1332 or equivalent.
Description: Theory and Application of Geometric Dimensioning and Tolerancing (GD&T) technique based on ASME Y14.5. Creation, analysis, and inspection of tolerances for manufacturing. Previously offered as MET 3223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4713 Internal Ballistics
Prerequisites: A grade of "C" or better in (ENSC 2123 or MET 3003) and ENSC 2143 and (ENSC 3233 or MET 3313).
Description: This course is about launching projectiles. Course topics include projectile launching systems, solid propellant combustion, design and manufacturing of projectiles and ammunition, internal ballistic models, design and manufacturing of the barrel, structural dynamics of the barrel, dynamics of guns, firing mechanisms and fire-control systems, SAAMI Standards, and project. May not be used for degree credit with MET 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4723 External Ballistics
Prerequisites: A grade of "C" or better in (ENSC 2123 or MET 3003) and (ENSC 3233 or MAE 3333 or MET 3313).
Description: This course focuses on the motion of a projectile in the air. Course topics include vacuum trajectory, aiming principles and devices, aerodynamic forces and moments, ballistic coefficient, flat-tire point-mass trajectory, weather, Coriolis effects, gyroscopic effect, point-mass trajectory, pitching and yawing motion, measurement of projectile speed and environmental conditions, long-range shooting, and project. May not be used for degree credit with MET 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4733 Terminal Ballistics and Armor
Prerequisites: Grade of "C" or better in (MET 3003 or ENSC 2123) and permission of the instructor.
Description: Practical applications of dynamics theories to the mechanical behavior of projectiles and targets at impact. Structural and body armor system design, test, and analyses. May not be used for degree credit with MET 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4803 Mechatronic System Design
Prerequisites: Grade of “C” or better in GENT 3123 and MET 3803 (can be concurrent enrollment in GENT 3123).
Description: Modelling of mechanical, electrical, and hydraulic components. Feedback control systems, electro-hydraulic drives, electrical drives, and microcontroller programming. Previously offered as GENT 4503. Same course as EET 4803.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 4883 Tool Design
Prerequisites: A grade of "C" or better in MET 2213 and MET 3343.
Description: Basic design and development of special tools for processing or manufacturing engineering materials. Design and specification and inspection tools using appropriate techniques of engineering graphics and analysis. Previously offered as MFGT 4883.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MET 4953 Industrial Assessment and Improvement
Prerequisites: Junior or higher standing.
Description: Plant assessment and improvement-based concepts, strategies, and tools for manufacturing operations. Emphasis is on small to medium-sized manufacturing operations. Issues include energy, water, waste, quality, and productivity analysis across the organization from a systems perspective. Justification of improvement projects and measurement of results. May not be used for degree credit with IEM 4953 or IEM 5953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 4993 Mechanical Engineering Technology Practice
Prerequisites: Junior standing and consent of department head.
Description: Supervised industrial experience in mechanical engineering technology practice with minimal continual duration of eight weeks. Comprehensive journal, written report, and oral presentation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 5113 Practical Computational Fluid Dynamics
Prerequisites: Graduate standing.
Description: An introduction to the practical use of Computational Fluid Dynamics (CFD) commercial software. Students will be introduced to the concepts governing CFD, but the majority of the class will be utilized in learning the use of a popular commercial code. May not be used for degree credit with MET 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 5203 Finite Element Methods
Description: Application of Finite Element Methods to machine component design. Problems involving stress, strain, temperature and vibration will be solved using state of the art Finite Element Software. May not be used for degree credit with MET 4203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 5713 Internal Ballistics
Prerequisites: Graduate standing.
Description: This course is about launching projectiles. Course topics include projectile launching systems, solid propellant combustion, design and manufacturing of projectiles and ammunition, internal ballistic models, design and manufacturing of the barrel, structural dynamics of the barrel, dynamics of guns, firing mechanisms and fire-control systems, SAAMI Standards, and project. May not be used for degree credit with MET 4713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 5723 External Ballistics
Prerequisites: Graduate standing.
Description: This course focuses on the motion of a projectile in the air. Course topics include the vacuum trajectory, aiming principles and devices, aerodynamic forces and moments, ballistic coefficient, flat-tire point-mass trajectory, weather, Coriolis effects, gyroscopic effect, point-mass trajectory, pitching and yawing motion, measurement of projectile speed and environmental conditions, long-range shooting, and project. May not be used for degree credit with MET 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MET 5733 Terminal Ballistics and Armor
Prerequisites: Graduate standing.
Description: Practical applications of dynamics theories to the mechanical behavior of projectiles and targets at impact. Structural and body armor system design, test, and analyses. May not be used for degree credit with MET 4733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

Mechatronics and Robotics (MERO)

MERO 3373 Programmable Logic Controller Fundamentals
Prerequisites: "C" or better in (EET 2544 or MERO 2544).
Description: The course will introduce students with fundamentals of programming logic controllers, sensors and actuaors interfacing and control using Ladder logic programming. Previously offered as EET 3373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 4213 Industrial Robots
Prerequisites: ("C" or better in ENSC 2123 or MET 3003) and (MATH 3263 or EET 3423).
Description: This is an introductory course on robotics. The course introduces technology students to the dynamics and kinematics of industrial robots.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MERO 4833 Senior Design
Prerequisites: "C" or better in EET 2633 and (EET 3803 or MET 3803), and MET 4003.
Description: The course introduces students to the industrial design process in the area of mechatronics and robotics. The students will work in teams to engage in the design and development of industrial projects.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Mater Mero Manuf Engineering

MERO 4843 Senior Design II
Prerequisites: "C" or better in MERO 4833.
Description: This course is the second semester of the Senior Design Course. The students will be introduced to the industrial design process in the area of mechatronics and robotics.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Mater Mero Manuf Engineering

MERO 5000 Thesis Research
Prerequisites: Consent of instructor.
Description: Methods used in research and thesis writing. Same course as FSEP 5000. Offered for variable credit, 1-6 credit hours, maximum of 18 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Mater Mero Manuf Engineering

MERO 5060 Emerging Topics in Engineering Technology
Prerequisites: Consent of instructor.
Description: Advanced and emerging topics normally not included in existing MSET program. Repeat credit may be earned with different course subtitles assigned. Same course as FSEP 5060. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5070 Directed Studies
Prerequisites: Consent of instructor.
Description: Individual report topics in processes, equipment, experiments, literature search, theory, computer use or combinations or these. Offered for variable credit, 2-4 credit hours, maximum of 4 credit hours. Same as FSEP 5990.
Credit hours: 2-4
Contact hours: Contact: 2-4 Other: 2-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Mater Mero Manuf Engineering

MERO 5113 Mechatronic Systems I
Prerequisites: Consent of instructor.
Description: Applications of mechatronics, basic building blocks of mechatronics systems, electronic components, mechanical components, interface between electronic and mechanical components, and considerations of mechatronics system design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5123 Mechatronic Systems II
Prerequisites: MERO 5113 or equivalent.
Description: Modeling of mechanical, electrical, and hydraulic components and robotic manipulators. Mechatronic control systems design, electro-hydraulic drives, electrical drives, robotic manipulator and intelligent control design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5133 Mechatronic System Hardware and Software Integration
Prerequisites: MERO 5113.
Description: This course offers a comprehensive foundation for computer-based analysis of signals, digital and analog communication to support mechatronic application and troubleshooting. Various computing tools for mechatronic systems development such as MATLAB, LABVIEW, and ROS, will be introduced with a focus on software and hardware integration.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5213 Introduction to Robot Dynamics and Kinematics
Prerequisites: MERO 5113.
Description: This is an introductory course on robotics. The course introduces technology students with the modeling of robotics manulators. Dynamics and kinematics of industrial robots. Sensing and actuation systems used in the industry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5303 Feedback Control Systems for Mechatronic Systems
Prerequisites: Graduate standing or instructor permission.
Description: This course introduces mechatronic system modeling, feedback control, time and frequency domain analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5313 Linear Control Systems for Mechatronics
Prerequisites: MERO 5113.
Description: The course is an application specific course. Applications of feedback control in mechatronics, mathematical models of mechatronics systems and components, time-domain analysis, and stability, and state-variable models of feedback systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5323 Intelligent Control of Mechatronic Systems
Prerequisites: MERO 5123.
Description: The course introduces students with applications machine intelligence for control of mechatronic systems. Topics covered are neural network control, fuzzy logic control, and other evolutionary control approaches in mechatronics. The course will also introduce machine vision and image processing for mechatronic applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5333 Learning-Based Control for Mechatronics and Robotics
Prerequisites: Graduate standing or instructor permission.
Description: The goal of this course is to give the students an introduction to a variety of intelligent control techniques and their applications in mechatronics and robotics systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5413 Robotic Underwater Vehicles
Prerequisites: MERO 5213 or consent of instructor.
Description: Analyze the current design of a robotic underwater vehicle and contribute a substantial design improvement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5423 Engineering Acoustics
Prerequisites: Graduate standing or consent of instructor.
Description: A first course in engineering acoustics dealing with the nature of sound. A mathematical basis for the analysis of sound is progressively developed beginning with first principles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5433 Industrial Noise Control
Prerequisites: MERO 5423 or MAE 5083.
Description: Design and analysis of industrial noise creation and the methods of attenuation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5513 Electrohydraulics
Prerequisites: Graduate standing, department permission required or consent of instructor.
Description: Proportional electrohydraulic control valves, servo valves, pressure transducers, position sensors, motion control of hydraulic cylinders, synchronization of two cylinders, and control of press circuits.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MERO 5523 Electropneumatics
Prerequisites: Graduate standing, department permission required or consent of instructor.
Description: Electronic components for pneumatic systems, sensor switches, ladder logic diagram, programmable logic controller, and sequence control.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Mater Mero Manuf Engineering

MERO 5613 Smart Manufacturing for Mechatronics
Description: The course introduces the basic concepts, applications, and current advancements of SMART manufacturing in process industries. This course also shows overview of new technologies, such as Industry 4.0, Industrial Internet, manufacturing based on cyber-physical system (CPS), cloud computing, Internet of Things (IoT), big data analytics, artificial intelligence (AI), and digital twins, etc. Digital twin (DT) is introduced as a pragmatic way for the cyber-physical fusion. It helps to develop a smarter manufacturing system with higher efficiency and reliability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5633 Multiphysics Computational Modeling and Simulation
Prerequisites: Graduate standing or consent of instructor.
Description: The course will introduce the basic concepts of computation through modeling and simulation that are increasingly being used by designers, architects, planners, and engineers to shorten design cycles, innovate new products, and evaluate designs and simulate the impacts of alternative approaches. Students will use COMSOL® Multiphysics, a commercially available finite-element modeling software, to explore a range of programming and modeling concepts while acquiring those skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5713 Advanced CAD for Electro-Mechanical Systems
Description: Advanced computer-aided design methodologies and processes for mechatronic system. Design methodologies on electronic, mechanical components, and whole system will be taught using state-of-the-art technologies and modules in CAD system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5723 Mechanism Design with CAD
Prerequisites: Consent of instructor.
Description: Mechanism design of robotic and mechatronic components and systems. Kinematic and kinetic studies using analysis module in a CAD program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

MERO 5733 Advanced Vibration for Electro-Mechanical Systems
Prerequisites: Consent of instructor.
Description: Analysis, modeling and control of electro-mechanical systems vibrations with an emphasis on practical applications. Mechanical system design methods for noise and vibration mitigation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Mater Mero Manuf Engineering

Microbiology (MICR)

MICR 1211 First Year Microbiology Laboratory Experience
Prerequisites: MCMB major and concurrent enrollment in A&S 1111.
Description: This laboratory course is designed for First Year majors to experience microbiology in parallel with A&S 1111. Students will apply pure culture technique to obtain and characterize environmental isolates. Students also will learn light microscopy skills, anaerobic culture technique, and molecular biology skills.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Microbiology & Mol Gen

MICR 1213 Biology of Health (N)
Description: An introduction to the biology of human health and factors that impact health including infectious and genetic diseases and contributions from the environment. Students will learn about the role of microbes in our health and the cellular and molecular processes associated with diseases. The course will also introduce challenges associated with treating diseases and maintaining health. Student knowledge will be assessed through quizzes, exams and writing projects that explore related topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen
General Education and other Course Attributes: Natural Science Reasoning

MICR 1223 Fantastic Microbes and Where to Find Them: Extreme Microbial Worlds
Description: This course will provide a comprehensive overview of microbes that thrive in various extremophilic environments. The diverse structural and functional adaptations of microbes, their interactions with their habitats, and their use in industrial and societal applications will be explored. You will also gain an overview of methods for detecting and identifying these microorganisms. The information will be presented in a thorough yet broad overview, so no course prerequisites are required. Join our journey into the Extreme Microbial Worlds.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 1513 Inquiry-Based Biology
Description: Directed inquiry and hands-on study of biological principles. Restricted to elementary education majors or related fields as model course to learn and teach science.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Microbiology & Mol Gen

MICR 2123 Introduction to Microbiology
Prerequisites: Grade of "C" or better in BIOL 1114 or (BIOL 1113 and BIOL 1111) and either CHEM 1215 or CHEM 1314 or CHEM 1414 with a grade of "C" or better or concurrent enrollment in one.
Description: General principles of the biology of microorganisms, including bacteria, viruses, algae, fungi, protozoa and archaea. Course previously offered as MICR 2125.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 2132 Introduction to Microbiology Laboratory
Prerequisites: MICR 2123 or concurrent enrollment.
Description: Laboratory safety, aseptic technique, microscopy, staining and culture techniques, collection of microbial samples, isolation and identification of microorganisms, microbial growth and basic principles of metabolism, environmental microbiology, other discipline specific laboratory skills.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Microbiology & Mol Gen

MICR 2153 Pandemics Plagues and People (N)
Description: Overview of pandemics and plagues that have impacted human health. Course covers the historical aspects of how pandemics arose, how society was impacted and how science, medicine, and society responded to the outbreaks. Previously offered as MICR 4153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen
General Education and other Course Attributes: Natural Science Reasoning
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

MICR 2890 Honors Experience in Microbiology
Prerequisites: Honors Program participation and concurrent enrollment in a designated MICR course.
Description: A supplemental Honors experience in Microbiology to partner concurrently with designated MICR 2123 and/or MICR 2132 course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen
General Education and other Course Attributes: Honors Credit

MICR 3033 Cell and Molecular Biology
Prerequisites: (MICR 2123 with "C" or better) or (PBIO 1404 or BIOL 1604 and CHEM 1225 or CHEM 1414 or CHEM 1515 or equivalent with a grade of "C" or better).
Description: The cell concept and cell morphology, cell macromolecules, organelles, enzymes, energetics, movement of water and materials across membranes, influence of external environment, cellular synthesis, growth and maintenance, control and integration of function, replication, differentiation, origin, and evolution of cells. Course previously offered as CLML 3014, BIOL 3014, and BISC 3014.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 3053 Synthetic Biology
Prerequisites: BIOL 1113 and CHEM 1515
Description: Engineering of living systems at the molecular, cellular, and organismal levels: Origin of cellular life; reading and writing DNA; enzyme evolution; metabolic engineering. Applications to current and future biotechnologies in agriculture and medicine: Food and drug synthesis; biofuels; vaccines. This cross-listed course is designed to satisfy upper division elective requirements for students majoring in biochemistry or microbiology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 3103 Microbes: Friends or Foes (N)
Description: Explores the impact of microorganisms on human life, the environment, and world history. This course is designed for non-science majors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen
General Education and other Course Attributes: Natural Science Reasoning

MICR 3143 Medical Mycology
Prerequisites: MICR 2123 and MICR 2132 with a grade of "C" or better.
Description: Examination of fungi as animal pathogens; laboratory techniques used in the identification of human and animal pathogens, and differentiation from common contaminants.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Microbiology & Mol Gen

MICR 3154 Food Microbiology
Prerequisites: Minimum grade of "C" in (MICR 2123 and MICR 2132) and (CHEM 3013 or CHEM 3053).
Description: Relationship of microorganisms to food manufacture and preservation, to food spoilage and microbial food poisoning and to various aspects of primary food production. Same course as FDSC 3154. Course previously offered as ANSI 3154.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Microbiology & Mol Gen

MICR 3162 Synthetic Biology Laboratory Course
Prerequisites: BIOL 1113 and CHEM 1515
Description: Computer and laboratory exercises to introduce students with a wide range of biology experience to the practical principles of synthetic biology. Students learn the design of genetic circuits and CRISPR-Cas systems and create & test these designs in the laboratory using industry-standard molecular biology techniques. Same course as BIOC 3162. Students are strongly encouraged to co-enroll in BIOC/MICR3153 using the appropriate prefix according to their major.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Microbiology & Mol Gen

MICR 3213 My Genome: The DNA Revolution and what it means for you (N)
Description: Since the discovery of DNA as the universal genetic code, the field has advanced by leaps and bounds: scientists can now decipher, examine and modify the blueprints for life. This course emphasizes the relation between the underlying science of human genetics, the study of genomes (genomics), and the medical social issues that are emerging. Through hands-on activities, students learn about groundbreaking technologies like genome sequencing and gene editing and how these technologies impact diverse fields ranging from forensics to anthropology often leading to ethical dilemmas.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 3223 Advanced Microbiology
Prerequisites: Concurrent enrollment or completion of CHEM 3013 or CHEM 3053 and minimum grade of "C" in MICR 2123 and MICR 2132.
Description: Subcellular structure and function of microorganisms. Synthesis, translocation, and metabolism of cellular macromolecular constituents. Substrate transport and metabolism. Course previously offered as MICR 3224 and MICR 4224.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 3253 Immunology
Prerequisites: MICR 2123 and MICR 2132 and MICR 3033 or BIOC 3653 or BIOC 3713.
Description: Vertebrate host's ability to defend itself against foreign intrusion. Chemistry and biology of the acquired immune response. Course previously offered as MICR 3254 and CLML 3254.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 3333 Science Writing for a Broad Audience
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: Students will write three documents and will review texts on related topics written by other students in the course. The scientific topics for these texts will be selected by the students. Each of the three texts will be designed for a different audience: undergraduate students in the same major; high school students, and the general public. These texts will illustrate the scientific inquiry process, scientific methods, results and interpretation of scientific evidence, and relevance to society. Students will receive instructions on how to write, revise, and review these texts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 3553 Foundations of Cancer
Prerequisites: Minimum grade of "C" in CHEM 1225 or CHEM 1414 or CHEM 1515.
Description: Course covers six themes: causes of cancer, cancer genetics, cancer progression/diagnosis, cancer treatments, immuno-oncology, and cancer prevention. Course will illustrate both setbacks and victories in applying the scientific method to biological processes and the evidence for and assumptions made in these approaches will be discussed. Designed for future: medical doctors, cancer researchers, medical engineers; also, for cancer patients/relatives/caregivers, as well as for those interested in knowledge of cancer. Same course as PHYS 3553. Previously offered as MICR 3233. May not be used for degree credit with MICR 5553, PHYS 5553.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Microbiology & Mol Gen

MICR 3890 Advanced Honors Experience in Microbiology
Prerequisites: Honors Program participation and concurrent enrollment in a designated MICR course.
Description: A supplemental Honors experience in microbiology to partner concurrently with designated upper-division MICR course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen
General Education and other Course Attributes: Honors Credit

MICR 4000 Honors in Microbiology
Prerequisites: Consent of departmental honors committee.
Description: Supervised study and research in microbiology. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen
General Education and other Course Attributes: Honors Credit

MICR 4001 Professional Transitions in Microbiology and Cell and Molecular Biology
Prerequisites: MICR 2123 or MICR 2132.
Description: Understanding major areas and employment activities in microbiology, cell biology and molecular biology fields. Evaluating and understanding scientific and professional literature, and making the transition from undergraduate education to postgraduate education or employment.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4003 Brewing Microbiology (N)
Description: Brewing Microbiology is about the science behind beer brewing. Students will learn about the microbiology of yeast (including growth, metabolism, aseptic technique and contamination), biology of grain, biochemistry of malted barley, chemistry of water, preservative nature of hops, and the human physiology of taste and smell. There are no prerequisites for this course, although high school or freshman level biology and chemistry is helpful.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen
General Education and other Course Attributes: Natural Science Reasoning

MICR 4012 Molecular Microbiology Laboratory I
Prerequisites: MICR 3033 or MICR 3223.
Description: Emphasis on good laboratory practices in microbiology and molecular biology; isolation and enumeration of microorganisms; physiological, biochemical, and molecular characterization of aerobic and anaerobic microorganisms. May not be used for degree credit with MICR 5012. Course previously offered as CLML 4012.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Microbiology & Mol Gen

MICR 4013 Microbial Diversity, Ecology, and Evolution
Prerequisites: MICR 2123 and BIOL 3023.
Description: This course covers the fundamentals of ecology and evolution as they pertain to microbes, while also emphasizing the extensive diversity of the microbial world. Students in this course will receive instruction in the underlying principles of phylogenetics and microbial phylogeny, of microbe-microbe, microbe-host, and microbe-environment interactions, and of key principles of evolutionary theory as they apply to microbes. May not be used for degree credit with MICR 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4023 Microbiomes in Human Health and the Environment
Prerequisites: MICR 2123, MICR 2132, and MICR 3033.
Description: This course covers the changing landscape in the molecular diversity of microbial communities, their interactions with biotic and abiotic entities, and how changes in microbiomes impact the health of living organisms and the environment. The main topics of this course include: microbes and microbial interactions; genomes and metagenomes; microbiome structure and function (alpha and beta diversity, phylogenetic trees); human microbiomes (gut, skin, oral) and their role in health; the microbiomes of soil, water and sediments; and the role of microbiomes in ecosystem function. Environmental microbiome effects on the human microbiome. May not be used for degree credit with MICRO 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4052 Pathogenic Microbiology Lab
Prerequisites: MICR 2123 and MICR 2132 with a grade of "C" or better.
Description: Overview of laboratory approaches and techniques for the study, characterization, and identification of bacteria involved in pathogenesis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Microbiology & Mol Gen

MICR 4053 Pathogenic Microbiology
Prerequisites: MICR 2123 and MICR 2132 with a grade of "C" or better.
Description: Survey of pathogenic bacteria and the diseases they cause as they relate to humans and animals. Morphology, physiology, and pathogenic mechanisms of a specific bacterial pathogens. May not be used for degree credit with MICR 5053. Course previously offered as MICR 4134 and MICR 3134.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4112 Molecular Microbiology Capstone
Prerequisites: MICR 4012 with a grade of "C" or better.
Description: Continuation of MICR 4012. Molecular characterization of prokaryotic and eukaryotic microorganisms utilizing nucleic acids, proteins, cell fractionation, cytology, and antigen-antibody reactions. Same course as MICR 5112.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Microbiology & Mol Gen

MICR 4117 Clinical Microbiology
Prerequisites: Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except 30 hours clinical laboratory science.
Description: The theory and laboratory study of pathogenic bacteria, viruses, rickettsiae, fungi, and parasites. Includes isolation, identification, antimicrobial susceptibility testing, and medical significance. Course previously offered as CLLS 4117 and MTCL 4117.
Credit hours: 7
Contact hours: Contact: 14 Other: 14
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 4123 Virology
Prerequisites: MICR 2123 and (BIOL 3023 or MICR 3033 or BIOC 3653)
Description: Fundamental concepts of virology. Covers virus diversity & evolution, virus structure, infection & immune responses, vaccines & virus technology as well as virus discovery, emergence and epidemiology. Both eukaryotic and prokaryotic viruses (bacteriophages) will be discussed. May not be used for degree credit with MICR 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4125 Clinical Chemistry I
Prerequisites: Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except for 30 hours clinical laboratory science.
Description: The theory and laboratory methodology of analytical biochemistry, clinical microscopy, routine and special procedures, and medical significance. Course previously offered as CLLS 4125 and MTCL 4125.
Credit hours: 5
Contact hours: Contact: 10 Other: 10
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 4163 Foundations of Cellular Life
Prerequisites: MICR 3033 or permission from instructor.
Description: This class will provide an in-depth introduction into fundamental principles that apply to any microorganism and will provide an intellectual framework to understand all cells. The fundamentals discussed will be illustrated through a combination of classical and recent scientific breakthroughs. It will provide a solid, deep foundation for a successful academic career in microbiology. May not be used for degree credit with MICR 5163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4203 Bioinformatics
Prerequisites: MICR 3033 or BIOC 3653 or equivalent.
Description: Fundamental concepts of biological sequence information and inferential techniques to assign structure, function, and evolutionary relationship among genes and proteins. No prior programming necessary, but familiarity with computers assumed. No credit for students with credit in MICR 5203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4233 Advanced Cell and Molecular Biology
Prerequisites: MICR 3033 with a grade of "C" or better.
Description: Advanced topics in cell and molecular biology including regulatory mechanisms of gene expression, protein function, cell structure and organization, cell division, and development. May not be used for degree credit with MICR 5233. Course previously offered as CLML 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4236 Clinical Hematology
Prerequisites: Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except for 30 hours of clinical laboratory science.
Description: Systematized study of diseases, cell maturation and function, principles of hemostasis; methodology used in routine and special hematology studies; and correlation of hematological findings with physiological conditions. Course previously offered as CLLS 4236 and MTCL 4236.
Credit hours: 6
Contact hours: Contact: 12 Other: 12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 4246 Clinical Immunology
Prerequisites: Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except for 30 hours clinical laboratory science.
Description: Immunologic responses and procedures used in serological determinations; immunohematology, fundamentals of antigen-antibody reactions, blood groups and types, compatibility testing, blood components, and the lab methods used as they relate to the medical significance of immunology and infectious diseases. Course previously offered as CLLS 4246 and MTCL 4246.
Credit hours: 6
Contact hours: Contact: 12 Other: 12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 4253 Concepts in Medical Genetics
Prerequisites: BIOL 3023.
Description: Application of genetic principles in the study of human diseases, including the inheritance, molecular mechanisms, detection, characterization, and discovery of human genes. No credit for students with credit in MICR 5253. Course previously offered as CLML 4253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4263 Microbial Genetics: from Genes to Genomes
Prerequisites: MICR 3033 with a grade of "C" or better.
Description: Integration of genetics and genomics principles, the basic processes of gene transmission, molecular biology of gene expression and evolutionary genetics by gaining social and historical context in which genetics are developed. Participants are expected to comprehend the dramatic change in our understanding of genetics and the role such information has in our view of disability and disease. May not be used for degree credit with MICR 5263. Course previously offered as CLML 4263 and CLML 4264.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Microbiology & Mol Gen

MICR 4313 GeoMicrobiology
Description: Microbes have altered Earth's landscape over the past 3.5 billion years driving biogeochemical cycles and are still shaping our planet's surface. This course explores how microbes control geochemical processes and how geochemistry influences microbes. Course topics will cover microbe-mineral interactions, extremophiles, redox-geochemistry, enhanced oil and gas recovery, microbial metabolism and the diversity of microbial lifestyles. Students will gain an overview of methods used for the detection and identification of microorganisms in geological materials. This course is a journey along deep-sea sediments, hydrothermal systems, oil and gas reservoirs, agricultural soils, caves, Mars and many more. May not be used for degree credit with MICR 5313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4323 Cellular Energy Metabolism
Prerequisites: MICR 3033 or BIOC 3653.
Description: An exploration of the principals and mechanisms of energy utilization and transformation in animals, plants, and microbial systems. The course covers a range of topics from basic molecular mechanisms to recent advances in understanding energy flow in whole organisms. It includes new insights into the nanomachines involved in cell movement as well current genome-enabled approaches to understanding cellular energy metabolism. May not be used for degree credit with MICR 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4325 Clinical Chemistry II
Prerequisites: Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except for 30 hours clinical laboratory science.
Description: The theory and laboratory methodology of analytical biochemistry, instrumentation, lab mathematics, routine and special procedures and medical significance. Course previously offered as CLLS 4325 and MTCL 4325.
Credit hours: 5
Contact hours: Contact: 10 Other: 10
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 4351 Topics in Clinical Laboratory Science
Prerequisites: Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except for 30 hours clinical laboratory science.
Description: Principles and practices of the medical laboratory including basic management, quality assurance, education methodology, computer applications, laboratory safety, and special projects in selected areas. Course previously offered as CLLS 4351 and MTCL 4351.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 4423 Antibiotics and Antibiotic Resistance
Prerequisites: MICR 2123.
Description: This course begins with a basic history of antibiotics, including their discovery and industrial development. It covers the major classes of antibiotics, their structures and mechanisms of action, and the mechanisms by which bacteria become resistant to antibiotics. Also covered are industrial and commercial considerations, antibiotic stewardship, current challenges, and future prospects for antibiotic discovery and use. Same course as MICR 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4524 Biological Laboratory Instrumentation
Prerequisites: CHEM 1515 or equivalent and PBIO 1404 or MICR 2123 or BIOL 1604 or equivalents or consent of instructor.
Description: Lecture and laboratory course in biological instrumentation use, theory, experimental design, maintenance, and troubleshooting. Topics include liquid handling systems, pH/ISE meters, electrophoresis, microcontrollers, spectrophotometers, centrifuges, chromatography, thermocyclers, and DNA sequencers. May not be used for degree credit with BIOL 5524, MICR 5524, PBIO 5524. Same course as BIOL 4524 and PBIO 4524.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Microbiology & Mol Gen

MICR 4531 Chemical Biology
Prerequisites: CHEM 3053, MICR 3112, MICR 3153.
Description: Chemistry explains many properties of biological macromolecules and also provides research tools to study these molecules. This course will examine how both of these aspects help explain the molecular processes at the basis of life, and will cover (1) basic knowledge of chemistry needed to understand life, (2) chemical reactions as they occur in the cell, (3) chemical methods that are valuable to research in the life sciences.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4543 Microbial Genomics and Bioinformatics
Prerequisites: MICR 2123; MICR 3033 or MICR 3223 or equivalents.
Description: Basic approaches and strategies for microbial genome analysis, and hands-on training on the subject. May not be used for degree credit with MICR 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 4990 Special Problems
Prerequisites: Consent of instructor.
Description: Investigations in the field of microbiology. Offered for variable credit, 1-3 credit hours, maximum of 18 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 4993 Senior Honors Project
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A research project under the direction of a faculty member resulting in a written report to be judged by a second faculty member as well. Required for graduation with departmental honors in microbiology.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen
General Education and other Course Attributes: Honors Credit

MICR 5000 Thesis
Prerequisites: Consent of major professor.
Description: A student studying for the M.S. degree enrolls in this course for six hours credit. Offered for variable credit, 2-6 credit hours, maximum of 6 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 5002 Professionalism for the Microbiologist
Prerequisites: Microbiology graduate student or permission of instructor.
Description: Introduces the microbiology graduate student to the standards of the microbiology professional and to basic skills in communication and data retrieval needed by all microbiologists. It is required of all and limited to MS and PhD students in Microbiology & Molecular Genetics. Course previously offered as MICR 5001.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5012 Molecular Microbiology Laboratory I
Prerequisites: MICR 3223, MICR 4233.
Description: Emphasis on good laboratory practices in microbiology and molecular biology; isolation and enumeration of microorganisms; physiological, biochemical, and molecular characterization of aerobic and anaerobic microorganisms. Must be taken in conjunction with MICR 5112 the following semester. No credit for students with credit in MICR 4012.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Graduate
Schedule types: Lab
Department/School: Microbiology & Mol Gen

MICR 5013 Microbial Diversity, Ecology, and Evolution
Prerequisites: MICR 2123 and BIOL 3023.
Description: This course covers the fundamentals of ecology and evolution as they pertain to microbes, while also emphasizing the extensive diversity of the microbial world. Students in this course will receive instruction in the underlying principles of phylogenetics and microbial phylogeny, of microbe-microbe, microbe-host, and microbe-environment interactions, and of key principles of evolutionary theory as they apply to microbes. No credit for students with credit in MICR 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5023 Microbiomes in Human Health and the Environment
Description: This course covers the changing landscape in the molecular diversity of microbial communities, their interactions with biotic and abiotic entities, and how changes in microbiomes impact the health of living organisms and the environment. The main topics of this course include: microbes and microbial interactions; genomes and metagenomes; microbiome structure and function (alpha and beta diversity, phylogenetic trees); human microbiomes (gut, skin, oral) and their role in health; the microbiomes of soil, water, and sediments; and the role of microbiomes in ecosystem function. Environmental mircobiome effects on the human microbiome. May not be used for degree credit with MICR 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5052 Techniques In Molecular Biolog
Prerequisites: Graduate student and permission of instructor.
Description: Provides the basic skills for scientific thinking and analysis in molecular microbiological research.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Microbiology & Mol Gen

MICR 5053 Pathogenic Microbiology
Prerequisites: MICR 2123 and MICR 2132. Co-requisite(s): MICR 3223.
Description: Survey of pathogenic bacteria and the diseases they cause as they relate to humans and animals. Morphology, physiology, and pathogenic mechanisms of specific bacterial pathogens. May not be used for degree credit with MICR 4053. Course previously offered as MICR 5134.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5112 Molecular Microbiology Capstone
Prerequisites: MICR 5012.
Description: Continuation of MICR 5012. Molecular characterization of prokaryotic and eukaryotic microorganisms utilizing nucleic acids, proteins, cell fractionation, cytology, and antigen-antibody reactions. No credit for students with credit in MICR 4112.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Graduate
Schedule types: Lab
Department/School: Microbiology & Mol Gen

MICR 5113 Advanced Immunology
Description: Advanced studies with emphasis on the regulation of vertebrate immune responses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5123 Virology
Prerequisites: MICR 2123 and (BIOL 3023 or MICR 3033 or BIOC 3653)
Description: Fundamental concepts of virology. Covers virus diversity & evolution, virus structure, infection & immune responses, vaccines & virus technology as well as virus discovery, emergency and epidemiology. Both eukaryotic and prokaryotic viruses (bacteriophages) will be discussed. May not be used for degree credit with MICR 4123 or CBSC 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5142 Techniques in Molecular Biology
Prerequisites: Consent of instructor.
Description: Comprehensive laboratory course in research techniques involving classical genetics and molecular biology. Course previously offered as MICR 4142.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Graduate
Schedule types: Lab
Department/School: Microbiology & Mol Gen

MICR 5160 Seminar
Prerequisites: Consent of instructor.
Description: Required of and limited to all MS and PhD students majoring in microbiology, cell and molecular biology. Offered for fixed credit, 1 credit hour, maximum of 2 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 5163 Foundations of Cellular Life
Prerequisites: OSU graduate student or permission of instructor.
Description: This class will provide an in-depth introduction into fundamental principles that apply to any microorganism and will provide an intellectual framework to understand all cells. The fundamentals discussed will be illustrated through a combination of classical and recent scientific breakthroughs. It will provide a solid, deep foundation for a successful academic career in microbiology. Previously offered as MICR 6163. May not be used for degree credit with MICR 4163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5203 Bioinformatics
Prerequisites: MICR 3033 or BIOC 3653 or equivalent.
Description: Fundamental concepts of biological sequence information and inferential techniques to assign structure, function, and evolutionary relationship among genes and proteins. No prior programming necessary, but familiarity with computer desktop assumed. No credit for students with credit in MICR 4203. Course previously offered as CLML 5203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5233 Advanced Cell and Molecular Biology
Prerequisites: MICR 3033.
Description: Advanced topics in cell and molecular biology including regulatory mechanisms of gene expression, protein function, cell structure and organization, cell division, and development. No credit for students with credit in MICR 4233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5253 Concepts in Medical Genetics
Prerequisites: BIOL 3023.
Description: Application of genetic principles in the study of human diseases, including the inheritance, molecular mechanisms, detection, characterization, and discovery of human genes. No credit for students with credit in MICR 4253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5263 Microbial Genetics: from Genes to Genomes
Description: Integration of genetics and genomics principles, the basic processes of gene transmission, molecular biology of gene expression and evolutionary genetics by gaining social and historical context in which genetics are developed. Participants are expected to comprehend the dramatic change in our understanding of genetics and the role such information has in our view of disability and disease. May not be used for degree credit with MICR 4263.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Microbiology & Mol Gen

MICR 5273 Advanced Principles of Microbial Pathogenesis
Description: Advanced study of the pathogenic mechanisms used by microbial pathogens to cause disease. Principles of pathogen and pathogen-host interactions that lead to disease pathology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5313 GeoMicrobiology
Description: Microbes have altered Earth's landscape over the past 3.5 billion years driving biogeochemical cycles and are still shaping our planet's surface. This course explores how microbes control geochemical processes and how geochemistry influences microbes. Course topics will cover microbe-mineral interactions, extremophiles, redox-geochemistry, enhanced oil and gas recovery, microbial metabolism and the diversity of microbial lifestyles. Students will gain an overview of methods used for the detection and identification of microorganisms in geological materials. This course is a journey along deep-sea sediments, hydrothermal systems, oil and gas reservoirs, agricultural soils, caves, Mars and many more.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5323 Cellular Energy Metabolism
Prerequisites: MICR 3033 or BIOC 3653.
Description: An exploration of the principals and mechanisms of energy utilization and transformation in animals, plants, and microbial systems. The course covers a range of topics from basic molecular mechanisms to recent advances in understanding energy flow in whole organisms. It includes new insights into the nanomachines involved in cell movement as well current genome-enabled approaches to understanding cellular energy metabolism. May not be used for degree credit with MICR 4323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5333 Controversies in Vaccinology
Prerequisites: OSU graduate student status or permission of instructor.
Description: Public misconceptions about science abound, however, these misconceptions have a major impact on perception of research and public policy. Examples of themes in science as portrayed, for example, in film will be explored and critically discussed. Ways to improve communication between the scientist and the general public will be evaluated.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5423 Antibiotics and Antibiotic Resistance
Description: This course begins with a basic history of antibiotics, including their discovery and industrial development. It covers the major classes of antibiotics, their structures and mechanisms of action, and the mechanisms by which bacteria become resistant to antibiotics. Also covered are industrial and commercial considerations, antibiotic stewardship, current challenges, and future prospects for antibiotic discovery and use. Same course as MICR 4423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5513 Grant Proposal Preparation
Prerequisites: Admission into Microbiology graduate program. Formats, strategies, and styles of research grant proposal writing.
Description: Activities include hypothesis development and critical evaluation of research proposals.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Microbiology & Mol Gen

MICR 5524 Biological Laboratory Instrumentation
Prerequisites: CHEM 1515 or equivalent and PBIO 1404 or MICR 2123 or BIOL 1604 or equivalents or consent of instructor.
Description: Lecture and laboratory course in biological instrumentation use, theory, experimental design, maintenance, and troubleshooting. Topics include liquid handling systems, pH/ISE meters, electrophoresis, spectrophotometers, centrifuges, chromatography, thermocyclers, and DNA sequencers. May not be used for degree credit with BIOL 4524; MICR 4524; PBIO 4524. Previously offered as BIOL 5524; PBIO 5524.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Microbiology & Mol Gen

MICR 5543 Microbial Genomics and Bioinformatics
Prerequisites: MICR 2123; MICR 3033 or MICR 3223 or equivalents.
Description: Basic approaches and strategies for microbial genome analysis, and hands-on training on the subject. Graduate students enrolled in the class are expected to give a comprehensive presentation on the genomic analysis done throughout the semester. The presentation should be a manuscript format with a brief Introduction, Materials and Methods, Results, and Discussion. A comprehensive use of all principals covered in class is expected and will be used for evaluation. Credit will also be given to handling questions and presentation skills. May not be used for degree credit with MICR 4543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 5553 Foundations of Cancer
Prerequisites: A minimum grade of "C" in CHEM 3053 (or equivalent) or MICR 3033 (or equivalent) or consent of instructor.
Description: Course covers six themes: causes of cancer, cancer genetics, cancer progression/diagnosis, cancer treatments, immuno-oncology, and cancer prevention. Course will illustrate both setbacks and victories in applying the scientific method to biological processes and the evidence for and assumptions made in these approaches will be discussed. Suitable for graduate students in cancer-related research. Same course as PHYS 5553. May not be used for degree credit with MICR 3553, or PHYS 3553.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Microbiology & Mol Gen

MICR 5990 Special Problems
Prerequisites: Permission of instructor.
Description: Investigations in the field of Microbiology. Offered for variable credit, 1-4 credit hours, maximum of 10 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 6000 Dissertation
Prerequisites: Consent of major adviser.
Description: Research in microbiology for the PhD degree. Offered for variable credit, 1-15 credit hours, maximum of 45 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 6112 Molecular Biology of Bacterial Viruses
Prerequisites: MICR 4123 and MICR 4133.
Description: Advanced study of bacteriaphages. Course previously offered as MICR 6113.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 6120 Recent Advances in Microbiology
Prerequisites: One graduate course in biochemistry.
Description: Discussion and evaluation of recent scientific contributions in terms of the living organism. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Microbiology & Mol Gen

MICR 6133 Cellular Microbiology
Prerequisites: A strong undergraduate level background in microbiology, biochemistry or cell biology is expected.
Description: The molecular interactions between intracellular parasites and their host cells will be explored, emphasizing the manipulation of normal cellular processes to the benefit of the parasite. The course will involve critical reading of the current literature and development of an understanding of molecular microbe and cell biology research techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 6143 Advanced Microbial Physiology
Prerequisites: MICR 3223 or consent of instructor.
Description: Discussion of selected topics in microbial physiology. Critical analysis of research papers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 6153 Molecular Microbial Genetics
Description: Examine modern and classical genetic techniques to understand the underlying principles of molecular genetics using original literature.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 6223 Molecular Environmental Microbiology and Ecology
Prerequisites: MICR 3223 or consent of instructor.
Description: This course focuses on fundamental and applied aspects of microbial ecology, physiology and genomics. The course aims to highlight the value of microbes in applied disciplines such as medicine, agriculture, and biotechnology. Recent advances in methodologies and approaches for examining the phylogenetic and metabolic diversity of microorganisms in various ecosystems, as well as tools for understanding microbial community composition and identification of rare members of microbial community will be highlighted.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 6253 Microbial Evolution
Prerequisites: MICR 2123, MICR 2132, BIOC 3653, BIOL 3023.
Description: The mechanisms and results of microbial evolution in nature and in the laboratory, with emphasis on microbes as model evolutionary systems, molecular evolution, classification and phylogeny, and discussion of protobiology and the probable fate of engineered microbes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

MICR 6323 Cell Signaling
Prerequisites: A strong undergraduate level background in microbiology, biochemistry, or cell biology is expected.
Description: Discussion of current literature on the mechanisms of prokaryotic and eukaryotic signal transduction and gene regulation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Microbiology & Mol Gen

Military Science (MLSC)

MLSC 1113 Foundations of Officership
Description: Lecture: Team study and activities in basic drill, physical fitness, rappelling, leadership reaction course, first aid, presentations and basic marksmanship. Fundamentals of leadership. Optional weekend exercise. Lab: Learning and practicing basic skills such as rappelling, drill and ceremony, land navigation, individual first aid, individual training in small unit tactics. Previously offered as MLSC 1112.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Military Science

MLSC 1213 Basic Leadership
Description: Lecture: Principles of effective leading, communication skills and organizational ethical values. Optional weekend exercise. Lab: Learning and practicing basic skills such as rappelling, drill and ceremony, land navigation, individual first aid, individual training in small unit tactics. Previously offered as MLSC 1212.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Military Science

MLSC 2122 Leader's Training Course
Prerequisites: Must meet with Department head and have their approval.
Description: For students who have not completed all of basic ROTC. A four-week summer camp similar to Army Basic Training. No military obligation incurred. Completion of MLSC 2122 qualifies a student for entry into the Advanced Course.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Military Science

MLSC 2130 Military Physical Conditioning
Prerequisites: Must meet with department head and have their approval.
Description: Participation in and learning to plan and lead a physical fitness program. Development of an individual fitness program and the role of exercise and fitness in person's life. Offered for 1 hour fixed credit. Maximum of 2 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Military Science

MLSC 2233 Individual Leadership Studies
Description: Ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams. Skills in oral presentation, writing, planning, coordinating groups, land navigation and basic military tactics.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Military Science

MLSC 2313 Leadership and Teamwork
Prerequisites: MLSC 2233.
Description: Individual and team aspects of military tactics in small unit operations. Safety assessment, movement techniques, planning for team safety and security and methods of pre-execution checks. Training techniques for continued leadership development.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Military Science

MLSC 3113 Leadership and Problem Solving
Prerequisites: Completion of lower-division MLSC or equivalent, and approval of professor of military science.
Description: Practical opportunities to lead small groups in situations of increasing complexity receiving personal assessments and encouragement. Use of small unit defensive tactics and opportunities to plan and conduct training for lower-division students both to develop such skills and as vehicles for practicing leading.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Military Science

MLSC 3223 Leadership and Ethics
Prerequisites: MLSC 3113.
Description: Analysis of tasks; preparation of written or oral guidance for team members to accomplish tasks. Delegating tasks and supervising. Planning and adapting to the unexpected in organizations under stress. Examination and application of lessons from leadership case studies. Examination of importance of ethical decision-making in setting a positive climate that enhances team performance.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Military Science

MLSC 4014 Leader Development and Assessment Course
Prerequisites: Must meet with Department Head and have their approval.
Description: A five-week camp conducted at an Army post. Individual leadership and basic skills performance.
Credit hours: 4
Contact hours: Lab: 8 Contact: 8
Levels: Undergraduate
Schedule types: Lab
Department/School: Military Science

MLSC 4123 Leadership and Management
Prerequisites: MLSC 3113 and MLSC 3223.
Description: Planning conducting and evaluating activities of the ROTC cadet organization. Articulating goals, putting plans into action to attain them. Assessing organizational cohesion and developing strategies to improve it. Developing confidence in skills to lead people and manage resources.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Military Science

MLSC 4223 Officership
Prerequisites: MLSC 3113 and MLSC 3223.
Description: Continuation of the methodology from MLSC 4123. Identification and resolution of ethical dilemmas. Refining counseling and motivating techniques. Examination of aspects of tradition and law as related to leading as an officer in the Army.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Military Science

MLSC 4422 The Tactical Planning Process
Prerequisites: Must meet with department head and have their approval.
Description: The tactical planning process and its components. Computer tactical simulations used to organize and synchronize the process.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Military Science

Multimedia Journalism (MMJ)

MMJ 2063 Fundamentals of Journalism
Prerequisites: Departmental majors only. (MMJ, SPM, SC, and PMC.)
Description: Basics of journalism, its role in society and problems and issues facing journalism. History, philosophy, ethics and current events will be discussed. Students also will practice the basics of interviewing and writing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MMJ 3153 Fundamentals of Video and Studio Production
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or better; and pass proficiency review.
Description: Theory and practice of basic audio and video production techniques leading to later applications in audio, video and multimedia production. Introduction to studio operations for video and podcasting. Previously offered as JB 3153.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm

MMJ 3263 Multimedia Reporting
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or better in both; and pass proficiency review.
Description: Prepares students for the rigors of writing, reporting and visual storytelling for professional journalism outlets. Real-world assignments provide practical experience reporting and writing across media platforms. Emphasis on compelling storytelling and depth of reporting with an expectation that student work will be published or broadcast. Continuing command of grammar and style from MC 2003 will further be honed. News judgment, interviewing, the ability to meet deadlines will be addressed. Gathering news in an ethical manner is also emphasized. Previously offered as JB 2393 and JB 3263.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm

MMJ 3293 Information Graphics
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or better; and pass proficiency review.
Description: Using computer-designed charts, maps, graphs, diagrams and other visual representations of information to tell the news. Combines theories of non-verbal communication and practical application. Includes the basic design concepts and techniques for creating TV and video graphics. Previously offered as JB 3293.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm

MMJ 3313 Multimedia Editing
Prerequisites: MMJ 3263 or SPM 3813 with minimum grade of "C" or concurrent enrollment in MMJ 3263 or SPM 3813; pass proficiency review.
Description: Principles and practice in editing copy for print, broadcast and Web, selecting pictures and video, and writing headlines, cutlines, blurbs, teases and promos. Strong emphasis placed on language usage and ethical decision-making. Previously offered as JB 3313 and JB 2413.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Media & Strategic Comm

MMJ 3553 Advanced Reporting
Prerequisites: MMJ 3153 and MMJ 3263 with “C” or better in both, and pass proficiency review.
Description: Reporting techniques empowering journalists to fulfill their watchdog role in a democracy. Practical experience in accurately reporting and writing on deadline. Emphasis on multimedia to tell the news of government through people. Emphasizes importance of human diversity and cultivating sources ethically. Stresses the use of government documents. Previously offered as JB 3553.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm

MMJ 3773 Multimedia Voice and On-Camera Performance
Prerequisites: MMJ 3153 and MMJ 3263 with a grade of "C" or better in both; and pass proficiency review.
Description: Broadcast professionals team up with experienced faculty to polish the on-air performance of media students. In this class students will anchor and report news and discover their own personal style of delivering the news and sports.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MMJ 3873 Podcast and Audio Production
Prerequisites: MMJ 3153 with a grade of C or better; and pass proficiency review.
Description: Prepares students to work in radio and internet audio production and imaging. Students prepare and present materials in a broadcasting situation. Students learn about and develop skills in different formats of audio production, including the production of audio messages such as radio commercials and long-form programming, including podcasting. Previously offered as JB 3873 and JB 2873.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Media & Strategic Comm

MMJ 3900 Multimedia Journalism Internship
Prerequisites: MMJ 3153 and MMJ 3263 with a grade of "C" or better and consent of instructor, and pass proficiency review.
Description: Internship practice for qualified multimedia journalism students who seek creative communications experience off-campus beyond what is available in the classroom. Internships must be approved prior to counting hours worked. Must work sixty or more hours for each credit hour up to three credit hours for each individual internship. Previously offered as JB 3900. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MMJ 3913 Multimedia Content Creation
Prerequisites: MMJ 3153 and MMJ 3263 or SPM 3813 with a grade of "C" or better in both; and pass proficiency review.
Description: Techniques to write and produce creative content (video, audio and web-based projects) in a real-world environment. Students will produce material in the field, without assistance from studio engineers or other personnel. Applications are endless, but include social media content creation, sports, news, documentary, multimedia and long-form journalism projects, and even live production. Although a news format may be used for projects, the skills taught will translate into many production fields. Previously offered as JB 3913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MMJ 3943 Photojournalism
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or better in each, and pass proficiency review.
Description: Theory and practice in the digital techniques of photojournalism. Intermediate concepts of lighting, composition, action and storytelling via digital photography. A basic understanding of photography and photo developing necessary. Must have access to 35mm single reflex or digital camera. Previously offered as JB 3943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MMJ 4393 Data Journalism
Prerequisites: MMJ 3263 or SPM 3813 with a grade “C” or better, pass proficiency review; STAT 2013 or STAT 2023 or STAT 2053.
Description: Provides practical experience using data analysis while combining social science research methods with the process approach to news writing. Teaches how to find, analyze and visualize data. The data analysis will provide an essential element for a print or broadcast story. Follow-up reporting and writing emphasize how people are affected. Previously offered as JB 3393 and 4393.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm
Additional Fees: MMJ 4393 AP Stylebook fee of $5.30 applies.

MMJ 4413 Investigative Reporting
Prerequisites: MMJ 3553 with a grade of "C" or better; and pass proficiency review.
Description: Emphasizes the ethical use of primary sources, in-depth analysis and rigorous fact-checking to reveal important public matters that that others might be trying to conceal. Students learn to correctly estimate the nature, scope, importance and resources needed to conduct an original investigative project. They examine the ethical dilemmas and legal obstacles facing investigative reporters. Students report, write and produce a completed multimedia investigative project for publication and/or broadcast. Previously offered as JB 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MMJ 4433 Multimedia Feature Writing and Storytelling
Prerequisites: Minimum grade of "C" in MMJ 3153 and minimum grade of "C" in MMJ 3263 or SPM 3813; and pass proficiency review.
Description: In-depth features that combine writing, broadcast, photography and other elements as needed to produce packages. Previously offered as JB 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MMJ 4540 Specialized Multimedia Journalism Applications
Prerequisites: MMJ 3153 or MMJ 3263 with a grade of "C" or better and consent of department; and pass proficiency review.
Description: Professional journalism at an advanced level. Special topics in areas such as announcing, performance; political, business and investigative reporting; advanced layout and design or audio production; feature, column and editorial writing. Course content varies by semester. Meets with MC 5540. No credit for students in MC 5540. Previously offered as JB 4540. Offered for fixed 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

MMJ 4573 Broadcast Documentary
Prerequisites: MMJ 3913 with a grade of "C" or better; and pass proficiency review.
Description: Written and produced broadcast documentaries designed for distribution in multiple video platforms. Previously offered as JB 4573. May not be used for degree credit with ENTM 4573.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Media & Strategic Comm

MMJ 4863 Media Management
Prerequisites: MMJ 3263 or SPM 3813 with a grade of "C" or better; and pass proficiency review.
Description: Basic issues, concepts, operational procedures and strategies associated with effectively managing media corporations. Examines management operations related to media convergence and audience measurement. Emphasis is placed on making ethical decisions and administrative choices in staffing and content that reflect a community's diversity. Previously offered as JB 4863.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MMJ 4953 Advanced Production Practices
Prerequisites: MMJ 3913 and MMJ 3263 with a "C" or better; and pass proficiency review.
Description: Advanced professional television production. Student produced and directed television programs, including "specials," for distribution on cable or other professional media. Previously offered as JB 4953.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Media & Strategic Comm

MMJ 4960 Live Production
Prerequisites: MMJ 3153 with a grade of "C" or better; and pass proficiency review or consent of instructor.
Description: Develop a live, in-the-field or studio production from writing a program proposal to an actual live broadcast. Students determine what equipment is needed; conduct a site survey to develop a location plot for the site; determine the best location for the cameras and master control area; write a facilities request; and create scripts. Students learn proper techniques of in-the-field or studio videography, switching (live editing), and audio. Homecoming parade, its pre-show and other events are required. Previously offered as JB 4960. Offered for 3 fixed credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MMJ 4970 Newscast Production
Prerequisites: MMJ 3153 and (MMJ 3263 or SPM 3813) with minimum grade of "C" in each; pass proficiency review.
Description: Advanced skills in reporting, news producing, editing and anchoring. Students will assemble a video newscast or newsmagazine with content that is usable across various media platforms. Offered for 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

MMJ 4973 Multimedia Journalism Capstone
Prerequisites: MMJ 3553 and MMJ 4393 each with a grade of "C" or better; and pass proficiency review.
Description: Advanced principles and techniques for students specializing in both news and digital production. Students come together as teams to create multimedia news products.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

Music (MUSI)

MUSI 0500 Student Recital Attendance
Description: Graduation requirement for music degree or certificate candidates. Graded on a pass/fail basis.
Credit hours: 0
Contact hours: Lecture: 0 Contact: 0
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 1001 Percussion Techniques
Description: Methods for playing and teaching percussion instruments.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 1002 Fundamentals of Music
Description: The study of the foundations of tonal harmony.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 1011 Class Piano I
Prerequisites: Music major status or consent of instructor AND (MUSI 1532 with a minimum grade of "C" OR concurrent enrollment in MUSI 1532).
Description: Class Piano I is a course designed for vocal and instrumental (non-keyboard) majors to develop functional piano skills. Basic fluency in musical notation is assumed.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 1021 Class Piano II
Prerequisites: MUSI 1011 with minimum grade of “C” and music major status or consent of instructor.
Description: Class Piano II continues the development of keyboard skills established in MUSI 1011.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 1031 Voice Class Lessons
Description: To gain knowledge within a group class setting of the vocal instrument as it applies to each individual, and to learn to apply these techniques to solo voice performance. To give each student a strong foundation in healthy classical vocal technique to allow them to sing throughout their lifetime.
Credit hours: 1
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 1071 Single Reed Techniques
Description: Methods for playing and teaching the clarinet and saxophone.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 1081 Double Reed Techniques
Description: Methods for playing and teaching the oboe and bassoon.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 1091 High Brass Techniques
Prerequisites: MUSI 1532 with a minimum grade of "C" or consent of instructor.
Description: Methods for playing and teaching the trumpet and French horn.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 1110 Elective Organ
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1120 Elective Piano
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1130 Elective Voice
Prerequisites: Concurrent enrollment in a choral ensemble (MUSI 2630, MUSI 3630 and/or MUSI 4600) or permission of instructor.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1140 Elective Brass
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1150 Elective Class Guitar
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1160 Elective Woodwinds
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1170 Elective Percussion
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1180 Secondary Organ
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1190 Secondary Piano
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1200 Secondary Voice
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1210 Secondary Brass
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1220 Secondary String
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1230 Secondary Woodwind
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1240 Secondary Percussion
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1250 Major Organ
Description: Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1260 Major Piano
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1270 Major Voice
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1280 Major Violin
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1290 Major Viola
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1300 Major Cello
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1310 Major Double Bass
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1340 Major Flute
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1350 Major Oboe
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1360 Major Clarinet
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1370 Major Saxophone
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1380 Major Bassoon
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1390 Major Trumpet
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1400 Major French Horn
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1410 Major Trombone
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1420 Major Euphonium
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1430 Major Tuba
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1440 Major Percussion
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 1501 Sightreading and Technique for Piano Majors
Prerequisites: Music major status or consent of instructor.
Description: Sightreading and Technique for Piano Majors is a course designed for pianists to develop keyboard fluency through essential keyboard skills required for pianists, including sightreading, technique, harmonization and transposition.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Music

MUSI 1531 Sight Singing and Aural Skills
Prerequisites: Must have passed or be concurrently enrolled in MUSI 1532 Theory of Music I.
Description: Development of skills in sight singing and aural perception. Taken concurrently with MUSI 1532.
Credit hours: 1
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 1532 Theory of Music I
Prerequisites: MUSI 1002 Fundamentals of Music or receiving a passing score of 30 points or higher on the music theory diagnostic exam.
Description: The study of tonal harmony through analysis and composition. Taken concurrently with MUSI 1531. Previously offered as MUSI 1533.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 1541 Sight Singing and Aural Skills II
Prerequisites: MUSI 1531 and (MUSI 1532 or MUSI 1533) with minimum grade of "C."
Description: A continuation of MUSI 1531. Taken concurrently with MUSI 1542 or MSIN 2022.
Credit hours: 1
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 1542 Theory of Music II
Prerequisites: MUSI 1532 with minimum grade of "C."
Description: A continuation of MUSI 1532. Taken concurrently with MUSI 1541. Previously offered as MUSI 1543.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 1623 Introduction to Music Business
Prerequisites: Music major status or consent of instructor.
Description: A survey of music business procedures, opportunities, technologies and trends.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 1631 Introduction to Diction for Singers
Description: Designed for Music Education majors. Introduces and develops skills in pronunciation and diction for singing in English, Italian, French and German.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 2010 Piano Class Lessons
Prerequisites: MUSI 1021 with minimum grade of "C" and music major status.
Description: Class lessons for music majors (non-keyboard concentration) preparing for the piano proficiency examination. Previously offered as MUSI 2011. Offered for 1-fixed credit hour, maximum of 3 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2013 Popular Music Theory
Prerequisites: MUSI 1542 with a minimum grade of "C" or MUSI 1543 with a minimum grade of "C".
Description: This course is a continuation of MUSI 1542. The course will focus on jazz and popular music theory, including elementary principles of popular chord voicings and arrangements, chord scale relationships, blues, AABA and other song forms. Analysis of jazz solo transcription as well as basic keyboard skills will be emphasized in addition to required listening to exceptional examples of standard popular music recordings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 2051 High String Techniques
Description: Methods for playing and teaching the violin and viola. Previously offered as MUSI 2052.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Music

MUSI 2061 Low String Techniques
Description: Methods for playing and teaching the cello and double bass. Previously offered as MUSI 2052.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Music

MUSI 2071 Flute Techniques
Description: Methods for playing and teaching the flute.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2080 Music Composition
Prerequisites: Consent of instructor.
Description: Practical experience in musical composition. Offered for 1-2 credit hours, maximum of 8.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2091 Low Brass Techniques
Description: Methods for playing and teaching the trombone, euphonium, and tuba.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 2250 Major Organ
Prerequisites: MUSI 1250.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2260 Major Piano
Prerequisites: MUSI 1260.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2270 Major Voice
Prerequisites: MUSI 1270.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2280 Major Violin
Prerequisites: MUSI 1280.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2290 Major Viola
Prerequisites: MUSI 1290.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2300 Major Cello
Prerequisites: MUSI 1300.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2310 Major Double Bass
Prerequisites: MUSI 1310.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2340 Major Flute
Prerequisites: MUSI 1340.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2350 Major Oboe
Prerequisites: MUSI 1350.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2360 Major Clarinet
Prerequisites: MUSI 1360.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2370 Major Saxophone
Prerequisites: MUSI 1370.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2380 Major Bassoon
Prerequisites: MUSI 1380.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2390 Major Trumpet
Prerequisites: MUSI 1390.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2400 Major French Horn
Prerequisites: MUSI 1400.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2410 Major Trombone
Prerequisites: MUSI 1410.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2420 Major Euphonium
Prerequisites: MUSI 1420.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2430 Major Tuba
Prerequisites: MUSI 1430.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2440 Major Percussion
Prerequisites: MUSI 1440.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2450 Major Harpsichord
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 2480 Elective Applied Lessons
Prerequisites: Permission of instructor.
Description: Applied lessons for non-music majors or for majors studying secondary instruments.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2490 Major Applied Lessons
Prerequisites: Music major status.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2551 Sight Singing and Aural Skills III
Prerequisites: MUSI 1541 and MUSI 1542 with minimum grade of "C."
Description: Further development of skills in sight singing and aural perception. Taken concurrently with MUSI 2552.
Credit hours: 1
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2552 Theory of Music III
Prerequisites: MUSI 1542 with minimum grade of "C."
Description: A continuation of MUSI 1542. Taken concurrently with MUSI 2551. Previously offered as MUSI 2553.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2561 Sight Singing and Aural Skills IV
Prerequisites: MUSI 2551 and MUSI 2552 with minimum grade of "C."
Description: A continuation of MUSI 2551. Taken concurrently with MUSI 2562.
Credit hours: 1
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 2562 Theory of Music IV
Prerequisites: MUSI 2552 with minimum grade of "C."
Description: A continuation of MUSI 2552. Taken concurrently with MUSI 2561. Previously offered as MUSI 2563.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2573 Introduction to Music (H)
Description: Introduction to the great music of the past and present with the objective of bridging the gap between the audience and concert stage via active listening. No prior musical experience required. Previously offered as MUSI 2572.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
General Education and other Course Attributes: Human Heritage & Cultures

MUSI 2583 Hip-Hop Music
Description: This course examines hip-hop as a musical genre and culture, exploring MCing/rapping, DJing/scratching, sampling, beat boxing, and break dancing, within its musical and social context.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 2603 Film Music
Description: This course examines film music from the silent film era to present day. Students analyze film scores to observe the associations between music and film.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2610 University Bands I
Description: Beginning study of a wide variety of music in all areas of band literature. Offered for 1 fixed credit hour, maximum of 36 credit hours.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2620 Symphony Orchestra I
Description: Beginning study of a wide variety of music in all areas of orchestral literature. Offered for 1 fixed credit hour, maximum of 36 credit hours.
Credit hours: 1
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2630 University Choral Ensembles I
Description: Beginning study of a wide variety of music in all areas of choral literature. Offered for 1 fixed credit hour, maximum of 36 credit hours.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2722 Introduction to Music Education
Description: An entry level course designed to socialize the music education major to the role of the music education teacher within U.S. schools. Topics include motivation and management, learning theories, micro teaching, music advocacy, portfolio introduction, and early field experience. Previously offered as MUSI 1723.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 2763 History of Rock and Roll (H)
Description: Study of the origins and innovators of rock and roll music. Course will examine the musical, historical and sociological significance of a variety of genres. Previously offered as MUSI 3733. May not be used for degree credit with MUSI 3883.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
General Education and other Course Attributes: Human Heritage & Cultures

MUSI 2783 American Popular Music (H)
Description: A survey of American popular music from the nineteenth century to the present day. Beginning with Tin Pan Alley and Broadway, the course traces many major developments in American popular music, such as rock and roll, country music, soul, funk, disco, punk rock, and hip-hop.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
General Education and other Course Attributes: Human Heritage & Cultures

MUSI 2990 Selected Studies in Music and Music Education
Description: Short-term area studies in music and music education. Offered for variable credit, 1-3 credit hours, maximum of 8 credit hours. Offered for variable credit, 1-3 credit hours, maximum of 8 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3012 Advanced Music Production
Prerequisites: MUSIC 3672 with a minimum grade of "C".
Description: Students explore techniques and practices related to making sound recordings. The objective of the course is to create studio quality recordings using Pro Tools.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3013 Country Music
Description: This course examines country music forerunners to present day commercial country music. Students explore social, political, and musical issues related to the American genre.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3022 Piano Skills for Vocal Music Education Majors
Prerequisites: MUSI 2010 with a minimum grade of "C" or consent of instructor.
Description: Development of skills in sight-reading, score reading, and general ensemble accompaniment for vocal music education majors.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3110 Elective Organ
Prerequisites: MUSI 1110.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3120 Elective Piano
Prerequisites: MUSI 1120.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3130 Elective Voice
Prerequisites: Concurrent enrollment in a choral ensemble (MUSI 2630, MUSI 3630 and/or MUSI 4600) or permission of instructor.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3140 Elective Brass
Prerequisites: MUSI 1140.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3150 Elective String
Prerequisites: MUSI 1150.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3160 Elective Woodwind
Prerequisites: MUSI 1160.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3170 Elective Percussion
Prerequisites: MUSI 1170.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3180 Secondary Organ
Prerequisites: MUSI 1180.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3190 Secondary Piano
Prerequisites: MUSI 1190.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3200 Secondary Voice
Prerequisites: MUSI 1200.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3210 Secondary Brass
Prerequisites: MUSI 1210.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3220 Secondary String
Prerequisites: MUSI 1220.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3230 Secondary Woodwind
Prerequisites: MUSI 1230.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3240 Secondary Percussion
Prerequisites: MUSI 1240.
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3250 Major Organ
Prerequisites: MUSI 1250.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3260 Major Piano
Prerequisites: Upper-division examination, MUSI 2260.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3270 Major Voice
Prerequisites: Upper-division examination, MUSI 2270.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3280 Major Violin
Prerequisites: Upper-division examination, MUSI 2280.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3290 Major Viola
Prerequisites: Upper-division examination, MUSI 2290.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3300 Major Cello
Prerequisites: Upper-division examination, MUSI 2300.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3310 Major Double Bass
Prerequisites: Upper-division examination, MUSI 2310.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3340 Major Flute
Prerequisites: Upper-division examination, MUSI 2340.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3350 Major Oboe
Prerequisites: Upper-division examination, MUSI 2350.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3360 Major Clarinet
Prerequisites: Upper-division examination, MUSI 2360.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3370 Major Saxophone
Prerequisites: Upper-division examination, MUSI 2370.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3380 Major Bassoon
Prerequisites: Upper-division examination, MUSI 2380.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3390 Major Trumpet
Prerequisites: Upper-division examination, MUSI 2390.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3400 Major French Horn
Prerequisites: Upper-division examination, MUSI 2400.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3410 Major Trombone
Prerequisites: Upper-division examination, MUSI 2410.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3420 Major Euphonium
Prerequisites: Upper-division examination, MUSI 2420.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3430 Major Tuba
Prerequisites: Upper-division examination, MUSI 2430.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3440 Major Percussion
Prerequisites: Upper-division examination, MUSI 2440.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3460 Secondary Harpsichord
Description: Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 3543 Music and Culture of Northern Italy (H)
Description: Study of northern Italy's contributions to culture through music and composers, instrument makers, architecture, and visual arts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
General Education and other Course Attributes: Human Heritage & Cultures

MUSI 3572 History of Opera in Society (H)
Description: This course examines the development of opera not only as a genre of western European art music, but also as a class-based form of theatrical entertainment that served as commentary on contemporary artistic, social, and political issues.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
General Education and other Course Attributes: Human Heritage & Cultures

MUSI 3573 America's Ethnic Music (DH)
Description: A survey of the ethnic settlers of America and their musical traditions and literatures. Particular emphasis is given to settlers indigenous to Oklahoma. Students will examine their individual ethnic roots in music, family traditions, and life passages (births, deaths, celebrations).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

MUSI 3582 Survey of World Musics
Description: Survey of musical systems, performance practices, and philosophies from around the world, highlighting non-Western musics.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3583 Traditional World Music (H)
Description: Survey of the richly diverse musics of the world, emphasizing traditional musical practices. Exploration of the wide parameters of musical possibilities and the distinct priorities of various musical cultures, in order to gain insight and appreciation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
General Education and other Course Attributes: Human Heritage & Cultures

MUSI 3592 Introduction to Music Technology
Prerequisites: MUSI 1532.
Description: Introduction to specialized computer applications in music, including music notation, digital audio recording, processing and editing.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3593 Video Game Music
Description: This course examines the role of music as well as sound design (effects and ambient sounds) in video games. The course traces the history of video game music, exploring the similarities and differences from film music. Students focus on the interactivity and nonlinearity of video game music.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3610 University Bands II
Prerequisites: 4 hours of MUSI 2610.
Description: Advanced study of a wide variety of music in all areas of band literature. Offered for fixed, 1 fixed credit hour, maximum of 36 credit hours.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3620 Symphony Orchestra II
Description: Advanced study of a wide variety of music in all areas of orchestral literature. Offered for fixed credit, 1 fixed credit hour, maximum of 36 credit hours.
Credit hours: 1
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3630 University Choral Ensembles II
Description: Advanced study of a wide variety of music in all areas of choral literature. Offered for fixed credit, 1 fixed credit hour, maximum of 36 credit hours.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3640 Vocal Rehearsal Practicum
Prerequisites: MUSI 3712 with a minimum grade of "C"; AND MUSI 3832 with a minimum grade of "C"; and (MUSI 3932 with a minimum grade of "C" OR concurrent enrollment in MUSI 3932); OR consent of instructor.
Description: Designed for Vocal Music Education majors who are within two semesters of student teaching. This course prepares future teachers with classroom skills using one of the choral ensemble or lab group as their rehearsal medium. Previously offered as MUSI 3942. Same course as MUSI 3942. Offered for variable credit, 1-2 credit hours, maximum of 3 credit hours.
Credit hours: 1-2
Contact hours: Lab: 2-4 Contact: 2-4
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3641 Instrumental Rehearsal Practicum
Description: Designed for Instrumental Music Education majors who are within two semesters of student teaching. This course prepares future teachers with classroom skills using an instrumental ensemble or lab group as their rehearsal medium. Previously offered as MUSI 3942 and MUSI 3640. Same course as MUSI 3640. Prerequislte(s): MUSI 3712 with a minimum grade of "C"; and MUSI 3832 with a minimum grade of "C"; AND concurrent enrollment in MUSI 3852 OR MUSI 3862; OR consent of instructor.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Music

MUSI 3642 English and Italian Diction and Vocal Literature
Description: Course is designed for vocal performance majors, vocal music education majors and other serious voice students to assist them in mastering correct pronunciation and diction for singing standard English and Italian through the study and use of the international phonetic alphabet, and to familiarize them with many of the composers and songs which comprise the standard English and Italian vocal literature.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3652 French Diction and Vocal Literature
Description: Course is designed for vocal performance majors, vocal music education majors and other serious voice students to assist them in mastering correct pronunciation and diction for singing in French through the study and use of the international phonetic alphabet, and to familiarize them with many of the composers and songs which comprise the standard French vocal literature.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3662 German Diction and Vocal Literature
Description: Course is designed for vocal performance majors, vocal music education majors and other serious voice students to assist them in mastering correct pronunciation and diction for singing in German through the study and use of the international phonetic alphabet, and to familiarize them with many of the composers and songs which comprise the standard German vocal literature.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3672 Music Technology II
Prerequisites: MUSI 3592 with a minimum grade of "C".
Description: This course is a continuation of MUSI 3592. Music technology is a significant force in many aspects of contemporary music. This is especially apparent in the "pop" world (examples including amplification effects, synthetic instruments, music videos, and performance augmentation), but technology is not limited to this genre alone. MUSI 3672 will focus on acoustics, recording techniques, sound design and sound effects.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3712 Basic Conducting
Description: Principles of conducting choral and instrumental groups.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3722 Advanced Ensemble Conducting
Prerequisites: MUSI 3712 with a minimum grade of "C".
Description: Studies in advanced physical conducting techniques and score orientation, score reading, score analysis, and score interpretation.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3732 Secondary Choral Methods
Prerequisites: MUSI 3712 with a minimum grade of "C".
Description: Repertoire, rehearsal procedures, and vocal techniques for the public school choral teacher.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3741 Survey of Rock and Roll I
Description: An examination of the cultural and musical elements that led to the advent of Rock and Roll, through an exploration of the evolution of the music from its inception to 1980 through lecture, reading and musical recordings.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3751 Survey of Rock and Roll II
Description: An examination of the cultural and musical elements that led to the advent of Rock and Roll, through an exploration of the music from 1980 to the present.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3753 History of Music to 1600 (H)
Prerequisites: MUSI 1542 with a minimum grade of "C" or MUSI 1543 with a minimum grade of "C".
Description: Aids music majors and other qualified students in understanding the musical styles, forms, schools, composers and instruments that developed in Western civilization from antiquity through the Renaissance period.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
General Education and other Course Attributes: Human Heritage & Cultures

MUSI 3763 History of Music from 1600-1800
Prerequisites: MUSI 1542 with a minimum grade of "C" or MUSI 1543 with a minimum grade of "C".
Description: Aids music majors and other qualified students in understanding the musical styles, forms, schools, composers and instruments that developed in Western civilization from the Baroque period through to the Classical period.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3772 Counterpoint
Prerequisites: (MUSI 2562 with a minimum grade of "C" or MUSI 2563 with a minimum grade of "C") and consent of instructor.
Description: Analysis and application of contrapuntal techniques of the 18th century. Students will be expected to have successfully passed the Upper-Division Theory Barrier Exam before enrolling in the course.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3783 Form And Analysis
Prerequisites: MUSI 2552 with minimum grade of "C" and successfully pass the Upper-Division Theory Barrier Exam.
Description: Analysis of standard repertoire with emphasis on form and structural harmonic analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3832 Elementary Music Methods
Prerequisites: MUSI 2722 with a minimum grade of "C".
Description: An overview of effective methods, techniques and materials for teaching music to children in the elementary grades. Theories of child development and implications on music learning; current philosophies or approaches for teaching music (Kodaly, Orff, and Dalcroze); designing and teaching musical activities through which children learn musical concepts and develop musical skills. Previously offered as MUSI 2832.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3842 Marching Bands Methods
Prerequisites: MUSI 2722 with a minimum grade of "C" and (MUSI 3832 with a minimum grade of "C" or concurrent enrollment) and (concurrent enrollment in MUSI 2610 or MUSI 3610 (marching band)).
Description: Organizational responsibilities and charting for public school marching bands. Must be taken concurrently with MUSI 2610 or MUSI 3610 (marching band).
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3852 Secondary Instrumental Methods
Prerequisites: MUSI 3712 with a minimum grade of "C" and MUSI 3832 with a minimum grade of "C".
Description: This course is designed to give instrumental music education majors an in-depth look at administering a public school band program, including history and wind literature, literature selection, preparing budgets, preparing commissioning projects, working with administration, school boards and parent groups, organizational responsibilities, and charting for public school marching bands.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3862 String Orchestra Methods
Prerequisites: MUSI 2722 with a minimum grade of "C".
Description: This course is designed to give string music education majors an in-depth look at administering a public school orchestra program, including history and string literature, literature selection, preparing budgets, working with administration, school boards and parent groups, organizational responsibilities, and concepts specifically related to string teaching and learning.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 3873 History of Music from 1800-Present
Description: Aids music majors and other qualified students in understanding the musical styles, forms, schools, composers and instruments that developed in Western civilization from the Romantic period through to the present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3883 History of Popular Music
Description: A survey of popular music, the course traces its developments and explores its derivatives until present day. In addition to music analysis, discussion on the subject explores the appeal of popular music, the means of dissemination, and society. May not be used for degree credit with MUSI 2763.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3901 Junior Recital
Prerequisites: Junior standing and consent of major applied music teacher.
Description: The objective of this course is to prepare and perform a junior recital that meets the necessary artistic and technical standards expected of a junior music major.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 3932 Intermediate Music Methods
Prerequisites: MUSI 3832 with a minimum grade of "C".
Description: Second in a series of three methods courses for vocal music education majors. Hands-on teaching experiences. Topics include curriculum design and evaluation; technology for music instruction; repertoire selection and effective rehearsal techniques. Previously offered as MUSI 2832.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4042 Collaborative Piano I
Prerequisites: Music major status or consent of instructor.
Description: This course introduces pianists to various collaborative works focusing on vocal repertoire from early Italian songs written in the late Renaissance era through the music of our times. This course will feature class performance and coaching sessions, and discussions of style and practical rehearsal techniques, with listening and reading assignments. Through the course, students will learn the art of collaborating with vocalists. No credit for students with credit in MUSI 5042.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4051 Introduction to Woodwind Repair and Maintenance
Description: Beginning woodwind repair and maintenance involves hands-on instruction on basic repair for woodwind instruments, including saxophone, clarinet, and flute. Woodwind repair experts will guest lecture in addition to the primary instructor.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4080 Music Composition
Prerequisites: Consent of instructor, MUSI 2080.
Description: Practical experience in musical composition. Offered for 2 credit hours, maximum of 12.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4100 Music Industry Internship
Prerequisites: 90 credit hours and minimum 2.50 GPA in all music and business courses.
Description: Directed practical experiences in an approved work situation related to the music industry. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4142 Collaborative Piano II
Prerequisites: Music major status or consent of instructor.
Description: This course introduces pianists to duo/chamber repertoire written for piano with various instruments. This course will feature class performances, discussions of style and practical techniques in rehearsal, and recital performances as a collaborative pianist. The course will focus on repertoire from the Baroque era to the present, including works for solo instruments and piano, duo sonatas, character pieces, and chamber music for 3 or more instruments. May not be used for degree credit with MUSI 5142.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4250 Major Organ
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4260 Major Piano
Prerequisites: MUSI 3260 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4270 Major Voice
Prerequisites: MUSI 3270 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4280 Major Violin
Prerequisites: MUSI 3280 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4290 Major Viola
Prerequisites: MUSI 3290 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4300 Major Cello
Prerequisites: MUSI 3300 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4310 Major Double Bass
Prerequisites: MUSI 3310 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4340 Major Flute
Prerequisites: MUSI 3340 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4350 Major Oboe
Prerequisites: MUSI 3350 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4360 Major Clarinet
Prerequisites: MUSI 3360 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4370 Major Saxophone
Prerequisites: MUSI 3370 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4380 Major Bassoon
Prerequisites: MUSI 3380 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4390 Major Trumpet
Prerequisites: MUSI 3390 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4400 Major French Horn
Prerequisites: MUSI 3400 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4410 Major Trombone
Prerequisites: MUSI 3410 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4420 Major Euphonium
Prerequisites: MUSI 3420 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4430 Major Tuba
Prerequisites: MUSI 3430 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4440 Major Percussion
Prerequisites: 3440 and successful completion of recital attendance requirements.
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4450 Major Harpsichord
Description: Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music

MUSI 4480 Elective Applied Lessons
Prerequisites: Permission of instructor.
Description: Applied lessons for non-music majors or for majors studying secondary instruments.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4490 Major Applied Lessons
Prerequisites: Pass Upper Division Exam and MUSI 2490.
Description: Offered for variable credit, 1-4 credit hours, maximum of 24 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate, Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4600 Chamber Ensembles
Description: Combinations of voice, keyboard, and orchestral instruments for performing chamber music, music theater and duo piano repertoire. Same course as MUSI 5600. Offered for fixed credit, 1 fixed credit hour, maximum of 36 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4700 Piano Accompanying
Prerequisites: Music major status or consent of instructor.
Description: The course is designed for piano students to develop techniques needed to study, analyze, and perform as accompanists. The piano majors will have one-hour weekly coaching sessions and learn various duo repertoire in collaborations with a vocalist and an instrumentalist assigned by the instructor of the course throughout the semester. Same course as MUSI 5700.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4742 Student Teaching Seminar in Music Education
Prerequisites: MUSI 3832 with a minimum grade of "C".
Description: This course is designed to foster the growth of skills necessary for successful music teaching in the public schools. Taught in conjunction with MUSI 4940, student teaching in the public schools. In-class seminars and on-line discussions will focus on current trends, issues, and challenges facing music educators today. Previously offered as MUSI 3743.
Credit hours: 2
Contact hours: Lecture: 1 Contact: 2 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4810 Problems in Musical Composition
Prerequisites: MUSI 1542 with a minimum grade of "C" or MUSI 1543 with a minimum grade of "C".
Description: Practical experience in musical composition. May not be used for degree credit with MUSI 5810. Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4812 Performance and Analysis
Prerequisites: Junior standing as a music major or consent of instructor.
Description: An overview of the relationship between performance and analysis within the field of music theory. No degree credit for students with credit in MUSI 5812.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4840 Special Studies in Music Literature
Prerequisites: Junior standing or consent of instructor.
Description: Survey of music literature suitable for teaching various levels in applied music. Offered for fixed credit, 2 fixed credit hours, maximum of 4 credit hours.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4842 Choral Literature for the Classroom
Prerequisites: MUSI 3732 with a minimum grade of "C".
Description: Exploration of the vast amount of choral literature available to the choral conductor. Includes repertoire for all ages and all voices.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4890 Special Studies in Music Pedagogy
Prerequisites: Junior standing or consent of instructor.
Description: Survey of music pedagogical methods suitable for various levels and types of applied music. May not be used for degree credit with MUSI 5890. Offered for variable credit, 1-2 credit hours, maximum of 4 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4901 Senior Recital
Prerequisites: Senior standing and permission of major applied music teacher.
Description: The objective of this course is to prepare and perform a senior recital that meets the necessary artistic and technical standards expected of a senior music major.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4912 Orchestration and Arranging
Prerequisites: Upper-division standing as a music major or consent of instructor.
Description: Orchestrating for instrumental ensembles and arranging for choral ensembles.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4940 Student Teaching in Public School Music
Prerequisites: Full admission to Professional Education.
Description: Directed observation, seminars, and supervised student teaching in selected elementary and secondary music programs. Graded on a pass-fail basis. Offered for variable credit, 6-10 credit hours, maximum of 10 credit hours.
Credit hours: 6-10
Contact hours: Contact: 6-10 Other: 6-10
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4952 Music in the School Curriculum
Description: Aims, content and motivation of the music education program in elementary and secondary schools from the standpoint of the classroom teacher, music specialist and administrator. May not be used for degree credit with MUSI 5952.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4962 Music Education Seminar
Description: Research into latest developments of public school choral and instrumental music. May not be used for degree credit with MUSI 5942.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4972 Post Tonal Analysis
Prerequisites: MUSI 2552 with minimum grade of "C" and successfully pass the Upper-Division Theory Barrier Exam.
Description: Techniques for the analysis of music from the 20th and 21st centuries, including set analysis.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MUSI 4990 Selected Studies in Music and Music Education
Description: Short-term area studies in music and music education. Offered for variable credit, 1-3 credit hours, maximum of 8 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 4993 Senior Honors Project
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided program in musicological research, music composition, or music performance, ending with an honors project under the direction of a faculty member with a second faculty member to complete an examining committee. Required for graduation with departmental honors in music.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Music
General Education and other Course Attributes: Honors Credit

MUSI 5002 Final Degree Performance
Description: Prepare and perform or conduct a public concert or recital of significant repertoire.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5012 Final Degree Project and Oral Examination
Description: Final capstone project in performance or conducting as assigned by disciplinary area, and cumulative oral examination before a designated committee of faculty. Detailed information on acceptable projects are found in the Graduate Music Student Handbook. Previously offered as MUSI 5004.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5022 Graduate Theory Review
Description: Designed as a review of musical analysis materials and techniques necessary to prepare students for further studies in music analysis at the graduate level. Enrollment is mandated or encouraged based on entrance exam scores.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5032 Graduate History Review
Description: A review of the development of Western European art music from the medieval era to the present day to enable graduate students to study music history at the graduate level. Enrollment is mandated or encouraged based upon entrance exam scores.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5042 Collaborative Piano I
Prerequisites: Music major status or consent of instructor.
Description: This course introduces pianists to various collaborative works focusing on vocal repertoire from early Italian songs written in the late Renaissance era through the music of our times. This course will feature class performance and coaching sessions, and discussions of style and practical rehearsal techniques, with listening and reading assignments. Through the course, students will learn the art of collaborating with vocalists. May not be used for degree credit with credit in MUSI 4042.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Music

MUSI 5051 Introduction to Woodwind Repair and Maintenance
Description: Beginning woodwind repair and maintenance involves hands-on instruction on basic repair for woodwind instruments, including saxophone, clarinet, and flute. Woodwind repair experts will guest lecture in addition to the primary instructor.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Music

MUSI 5113 Introduction to Graduate Studies in Music
Prerequisites: Admission to Master of Music program.
Description: Understanding of the resources available for research in the field of music. Explanation of the types of research materials needed for classes in the Master of Music degree program, as well as providing the groundwork for success in the professional world as a music educator and performer.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5142 Collaborative Piano II
Prerequisites: Music major status or consent of instructor.
Description: This course introduces pianists to duo/chamber repertoire written for piano with various instruments. This course will feature class performances, discussions of style and practical techniques in rehearsal, and recital performances as a collaborative pianist. The course will focus on repertoire from the Baroque era to the present, including works for solo instruments and piano, duo sonatas, character pieces, and chamber music for 3 or more instruments. May not be used for degree credit with MUSI 4142.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Music

MUSI 5480 Lessons in Applied Music (Minor Field)
Prerequisites: Bachelor's degree or equivalent performance level in applied major field.
Description: Offered for variable credit, 1-4 credit hours, maximum of 12 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5490 Lessons in Applied Music (Major Field)
Prerequisites: Bachelor's degree or equivalent performing level in applied major field.
Description: Private Lessons. Offered for variable credit, 1-4 credit hours, maximum of 12 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5512 Advanced Studies in Music Literature and Pedagogy I
Prerequisites: MUSI 3753, MUSI 3763 or equivalent.
Description: Techniques of successful programming, teaching and performance of ensemble literature through a survey of repertoire appropriate to the student's chosen medium.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5522 Advanced Studies in Music Literature and Pedagogy II
Prerequisites: MUSI 3753, MUSI 3763 or equivalent.
Description: A continuation of MUSI 5512, with emphasis upon music of the 20th century and its attendant specialized performance techniques.
Credit hours: 2
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5600 Chamber Ensembles
Description: Combinations of voice, keyboard, orchestral instruments for performing chamber music, music theater and duo piano repertoire. Offered for variable credit, 1-2 credit hours, maximum of 36 credit hours.
Credit hours: 1-2
Contact hours: Lab: 2-4 Contact: 2-4
Levels: Graduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5610 University Bands
Description: Advanced study of a wide variety of music in all areas of band literature. Offered for variable credit, 1-2 credit hours, maximum of 36 credit hours.
Credit hours: 1-2
Contact hours: Lab: 2-4 Contact: 2-4
Levels: Graduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5620 Symphony Orchestra
Description: Advanced study of a wide variety of music in all areas of orchestral literature. Offered for variable credit, 1-2 credit hours, maximum of 36 credit hours.
Credit hours: 1-2
Contact hours: Lab: 4-8 Contact: 4-8
Levels: Graduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5630 University Choral Ensembles
Description: Advanced study of a wide variety of music in all areas of choral literature. Offered for variable credit, 1-2 credit hours, maximum of 36 credit hours.
Credit hours: 1-2
Contact hours: Lab: 2-4 Contact: 2-4
Levels: Graduate
Schedule types: Lab
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5700 Piano Accompanying
Prerequisites: Music major status or consent of instructor.
Description: The course is designed for piano students to develop techniques needed to study, analyze, and perform as accompanists. The piano majors will have one-hour weekly coaching sessions and learn various duo repertoire in collaborations with a vocalist and an instrumentalist assigned by the instructor of the course throughout the semester. Same course as MUSI 4700.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5712 Advanced Studies in Conducting I
Prerequisites: MUSI 3712 and MUSI 3722 or equivalent.
Description: Acquisition of an expressive conducting gestural vocabulary as it relates to the student's chosen medium.
Credit hours: 2
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5722 Advanced Studies in Conducting II
Prerequisites: MUSI 5712.
Description: A continuation of MUSI 5712 focusing upon the gestural vocabulary as it relates to the specific complexities of contemporary music.
Credit hours: 2
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5733 Techniques of Pedagogy and Performance
Prerequisites: MUSI 3712 and MUSI 3722 or equivalent.
Description: Advanced techniques and modes for preparing music for performance.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5742 Conducting Practicum
Prerequisites: MUSI 5712, MUSI 5722.
Description: Supervised conducting opportunities with major OSU ensembles or approved off-campus ensembles.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5750 Seminar in Music History
Prerequisites: MUSI 3753 and MUSI 3763 or equivalent.
Description: Major European musical genres and pedagogical methods of a specified time in musical history. Acquaintance with source materials from the specified period to facilitate a knowledge of performance of genres studied. Topics vary. Previously offered as MUSI 5753. Offered for varied, 1-3 varied credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Music

MUSI 5810 Problems in Musical Composition
Prerequisites: Consent of instructor.
Description: Practical experience in musical composition. May not be used for degree credit with MUSI 4810.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Graduate
Schedule types: Independent Study
Department/School: Music

MUSI 5812 Performance and Analysis
Prerequisites: Passing score on Graduate Theory Placement Exam or MUSI 5022.
Description: An overview of the relationship between performance and analysis within the field of music theory. No degree credit for students with credit in MUSI 4812.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Music

MUSI 5813 Studies in Lyric Diction
Prerequisites: Bachelor's degree or equivalent performing level in applied major field.
Description: This course provides an in-depth study of lyric diction in Italian, French, German, and English through the application of the International Phonetic Alphabet (IPA). Students will develop skills in accurate pronunciation, articulation, and expressive text delivery essential for professional-level vocal performance. This course is designed for graduate-level singers, vocal coaches, collaborative pianists, choral and orchestral conductors, and music professionals seeking to enhance their linguistic proficiency in classical and operatic repertoire.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Music

MUSI 5842 Music Repertory
Description: Survey of music literature suitable for teaching various levels in applied music.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5890 Special Studies in Music Pedagogy
Description: Survey of music pedagogical methods suitable for various levels and types of applied music. May not be used for degree credit with MUSI 4890.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5942 Music Education Seminar
Description: Research into latest developments of public school choral and instrumental music. May not be used for degree credit with MUSI 4942.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Music

MUSI 5952 Music in the School Curriculum
Description: Aims, content and motivation of the music education program in elementary and secondary schools from the standpoint of the classroom teacher, music specialist and administrator. May not be used for degree credit with MUSI 4952.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Music

MUSI 5962 Analytical Techniques in Music I
Prerequisites: Passing score on Graduate Theory Placement Exam or MUSI 5022.
Description: A critical survey of important analytical approaches to tonal and post tonal music.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Music

MUSI 5972 Analytical Techniques in Music II
Prerequisites: Passing score on Graduate Theory Placement Exam or MUSI 5022.
Description: A continuation of MUSI 5962. Topics will include Schenkerian analyses, set theory, and other contemporary analytical approaches to post tonal music.
Credit hours: 2
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MUSI 5990 Selected Studies in Music
Description: Short-term area studies in music and music education. Offered for variable credit, 1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Graduate
Schedule types: Independent Study
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

Music Industry (MSIN)

MSIN 1011 Class Piano I
Prerequisites: Music industry major status or consent of instructor AND (MUSI 1532 with a minimum grade of "C" OR concurrent enrollment in MUSI 1532)
Description: The first group piano class of a two-course sequence prepares music industry majors in the development of functional piano skills necessary for songwriting and programming/recording. Students will learn to play one octave scales, root position triads, and simple chord progressions associated with popular music. Basic fluency in musical notation is assumed before taking the course.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Music

MSIN 1021 Class Piano II
Prerequisites: Music industry major status or consent of instructor AND MSIN 1011 with a minimum grade of "C".
Description: The second group piano class of a two-course piano sequence prepares music industry majors to continue to develop more advanced functional piano skills necessary for songwriting and programming/recording. Students will learn to play two octave scales, slash chords and inverted triads, and advanced chord progressions associated with popular music.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Music

MSIN 2012 Popular Music Theory I
Prerequisites: MUSI 1532.
Description: This course is a continuation of MUSI 1532. The course will focus on jazz and popular music theory, including elementary principles of popular chord voicings and arrangements, chord scale relationships, blues, AABA and other song forms.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MSIN 2022 Popular Music Theory II
Prerequisites: MSIN 2012.
Description: This course is a continuation of MSIN 2012. The course will focus on advanced jazz and popular concepts and music theory.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MSIN 3002 Fundamentals of Music Production
Prerequisites: Music industry major or consent of instructor.
Description: Course introduces concepts and principles related to DAW software, exploring the basics of music recording and production.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

MSIN 3012 Studio Music Production
Prerequisites: MSIN 3002.
Description: A continuation of MUSI 3002, the course explores techniques and practices related to making sound recordings in a recording studio.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MSIN 3052 Social Media for Music Industry
Prerequisites: Music industry major status or consent of instructor.
Description: This course explores the promotion of music and musical artists using social media.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MSIN 3132 Lighting for Music
Prerequisites: Music industry major or consent of instructor.
Description: Course explores the vocational and theoretical approaches of lighting to accompany live music, ranging from predetermined design to improvisational lighting that mirrors the music. The course also prepares students for music tours.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MSIN 3142 Sound Reinforcement
Prerequisites: Music industry major or consent of instructor.
Description: Course explores techniques and practices related to sound reinforcement for live entertainment. The objective of the course is to prepare students to run sound for front of house.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music

MSIN 4990 Special Topics in Music Industry
Prerequisites: Music industry major or consent of instructor.
Description: Short-term area studies in music industry.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Music
Additional Fees: Music Program fee of $30 per credit hour applies.

Natural Resource Ecology & Management (NREM)

NREM 1012 Introduction to Natural Resource Ecology and Management
Description: Introduction to the wide variety of natural resources found globally with a focus on Oklahoma ecoregions. Overview of the ecology and management of natural resources in the pine-hardwood forest, the Cross Timbers, and the tallgrass, mixed-grass and shortgrass prairies. Academic and career options presented through guest speakers.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 1014 Introduction to Natural History (LN)
Description: The study of living organisms especially their origins, life histories, behaviors, conservation, and unique adaptations for reproducing and relating to their environment. Laboratory emphasis is on observation and investigation of the diversity and adaptations of living organisms.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

NREM 1113 Elements of Forestry
Description: Survey of forestry as an art, science and profession including forestry and natural resource management theory, forest distribution and ownership, history of forest resource policy development, forest protection, wildlife interactions, forest ecosystem process, current issues, and career opportunities. Previously offered as NREM 1114.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 1213 Introduction to Wood Properties and Products
Prerequisites: NREM 1113 or instructor permission
Description: Anatomical, physical and mechanical properties of solid wood and wood products. Macroscopic and microscopic identification of wood. Principles of manufacture of lumber, plywood and wood composites. Biological deterioration of wood and main wood preservation techniques. One weekend field trip required. Previously offered as NREM 1214.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 2013 Ecology of Natural Resources
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) or PLNT 1213.
Description: Introductory focus on understanding and applying general ecological principles to agricultural and natural ecosystems. Emphasis on relationships between climate, soils, agricultural, and natural ecosystems. Topics include nutrient cycles, energy flow, species interactions, biological diversity, productivity, sustainability, and landscape and ecosystem management. Previously offered as RLEM 2913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 2083 Geospatial Technologies for Natural Resources
Prerequisites: MATH 1513.
Description: Principles and application of geospatial technologies for natural resource ecology and management including remote sensing (serial photography and satellite data), geographic information systems (GIS) and global positioning system (GPS) technologies. Previously offered as NREM 3083.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 2113 Wood Properties, Products, & Harvesting
Prerequisites: NREM 1113 or instructor permission
Description: Management and planning of timber harvesting, including products derived from wood. Harvesting techniques, safety and cost analysis. Anatomical, physical and mechanical properties of solid wood and wood products. Macroscopic and microscopic identification of wood. Manufacture of lumber and wood composites, including wood preservation to prevent deterioration. Previously offered as FOR 2002, FOR 2113 and NREM 2112.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 2134 Dendrology
Description: Identification, taxonomy and distribution of forest trees and shrubs of the United States; their environmental requirements and utilization. Previously offered as FOR 2134.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 3012 Applied Ecology Laboratory
Prerequisites: NREM 3013 or concurrent, NREM major or instructor permission.
Description: Field experience aimed at navigating and working effectively and safely in the natural environment. Identification, measurement and interpretation of abiotic and biotic components to understand and describe ecosystem function and current natural resource management tools and issues. Focus on representative forest, grassland and aquatic ecosystems.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Natural Res Eco & Mgmt
Additional Fees: NREM 3012 Field Trip fee of $46 applies.

NREM 3013 Applied Ecology and Conservation
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111), or BIOL 1604, or PBIO 1404, or PLNT 1213; Sophomore, Junior, or Senior class standing; SOIL 2124 preferred.
Description: Development of critical thinking for conservation and land management through the application of ecological concepts and theory. Principles of population, community, ecosystem and landscape ecology, with applications to management of wildlife, fisheries, forest and rangeland resources. Application of scientific method and literature to natural resource ecology and management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 3063 Natural Resource Biometrics
Prerequisites: STAT 2013; and MATH 1513 or MATH 1483.
Description: Application of statistical concepts to problems in natural resource sampling and estimation including simple random sampling, stratified sampling, regression analysis, double sampling and ratio and regression estimation. Statistical analysis using spreadsheets. Applications to forest, range and wildlife management. Previously offered as NREM 3363.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 3091 Field Applications of Geospatial Technologies for Natural Resources
Prerequisites: NREM 2083.
Description: Field-based use of global navigation satellite systems, geographic information systems and topographic maps to measure and interpret the environment with application to fishery, forest, range, and wildlife planning and management.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Natural Res Eco & Mgmt

NREM 3101 Forest Resource Field Studies
Description: One-week summer presession field experience at an off-campus site. Field study in the dynamics of forest ecosystems and related components including trees, soils, water, fauna, and associated flora as they relate to site productivity and the production of resource outputs, products, and services. Previously offered as NREM 3112.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Natural Res Eco & Mgmt

NREM 3111 Natural Resource Field Studies
Description: One-week summer presession field experience at off-campus site. Field study, analysis, and assessment of natural resource ecosystems at multiple scales with application to integrated management of forest, wildlife, range, water, soil, and recreation resources to sustain a broad array of uses and values, and to understand associated ecological, social, policy, and ethical issues. Includes visits to private and public natural resource lands and projects. Previously offered as FOR 3103 and NREM 3103.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Natural Res Eco & Mgmt

NREM 3125 Forest Measurements
Prerequisites: MATH 1513; STAT 2013 (or concurrent).
Description: Sampling methods, statistical design, and forest inventory methods with application to field work in forestry. Topics include methods for quantifying individual trees, forests, and forest resources; projecting forest growth and productivity; statistical analysis; and data presentation.
Credit hours: 5
Contact hours: Lecture: 4 Lab: 2 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 3133 Forest Measurements II
Prerequisites: NREM 2134 and NREM 3123.
Description: Forest-level measurements emphasizing statistical and tactical design of forest inventory methods with application and implementation in the field. Principles of forest growth and yield. Analysis, interpretation and presentation of data. Creation of professional reports. Overnight fieldtrips required. Previously offered as NREM 3102.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 3143 Forest Biology
Prerequisites: PBIO 1404.
Description: The response of trees and forest ecosystems to biotic and abiotic factors. Understanding of life history traits, tree structure, and genetics as they relate to the establishment, growth, and regeneration of species. Application of physiological and ecological principles in predicting the effects of resource availability, site quality, and competition on tree growth, forest growth, and community interactions. Previously offered as NREM 4213 and FOR 4563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 3153 Forest Health and Disturbance Ecology
Prerequisites: NREM 2013, or (NREM 3012 and NREM 3013), or BIOL 3034.
Description: Dynamics of ecological disturbance, resilience and recovery in forests. Natural role of fire in forest ecosystems and theory of fire behavior. Traits, population dynamics, and life cycles of major diseases and insect groups related to infestations and outbreaks that threaten forests. Previously offered as NREM 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 3224 Silviculture
Prerequisites: NREM 2013, or NREM 3012 and NREM 3013, or BIOL 3034.
Description: Theory and practice of controlling forest establishment, composition, structure, and growth to achieve multiple objectives including timber production, wildlife habitat, water quality, forest health, and recreation. Principles and techniques related to regeneration, thinning, prescribed fire, and harvest methods to increase the productivity, resilience, and output of desired ecosystem services. A two-day field trip is required. Previously offered as NREM 3223.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt
Additional Fees: NREM 3224 Field Trip fee of $22 applies.

NREM 3502 Wildlife Law Enforcement
Prerequisites: Junior standing and consent of instructor.
Description: Survey of state and federal wildlife laws with emphasis on Oklahoma statutory and regulatory laws pertaining to wildlife. Lectures, guest lectures, videotapes and field exercises. Previously offered as COSC 3502 and ZOOL 3502.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 3503 Principles of Wildlife Ecology and Management
Prerequisites: NREM 3013 or BIOL 3034 or concurrent.
Description: An introduction to the biological basis of the management of wildlife habitats and populations. Previously offered as NREM 4513, ZOOL 4513, WLDL 4513, and COSC 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 3523 Fish and Wildlife Population Biology
Prerequisites: NREM 3012 and NREM 3013, or BIOL 3034 or concurrent enrollment.
Description: Dynamics of fish and wildlife populations resulting from reproduction, competition, predation, movement, and exploitation. Effects of life history patterns on population growth and management strategies. Methods for measuring distribution, abundance, survival, and growth of fish and wildlife populations. Management strategies for fish and wildlife populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 3613 Principles of Rangeland Management
Description: Overview of the science of applying ecological principles to managing rangeland resources, including rangeland characteristics; goods and services provided by rangelands; primary threats to rangelands; North American rangeland resources; principles of grazing management and current topics in range management. Previously offered as RLEM 3913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4001 Issues In Global Change
Prerequisites: (NREM 3012 and NREM 3013) or BIOL 3034.
Description: Student led discussion to learn the causes and consequences of global change and practical implications for natural resource ecology and management.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Discussion
Department/School: Natural Res Eco & Mgmt

NREM 4013 Herbaceous Plants of the Great Plains
Description: Identification (by sight and dichotomous key), characteristics (vegetative and floral), ecological/agricultural importance, and management of important native range grasses and broadleaf plant families, genera, and species, with emphasis on rangeland management applications. May not be used for degree credit with NREM 5013.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 4023 Restoration Ecology
Prerequisites: 40 semester credit hours.
Description: Application of ecological theory to the practice of ecological restoration to improve populations, communities, and ecosystems degraded directly or indirectly by human activities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4033 Ecology Of Invasive Species
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111); (PBIO 1404 and BIOL 1604 recommended).
Description: Ecological principles and their application to invasive species. Population level characteristics; community and ecosystem level effects of a wide variety of taxa including microbial, fungal, plant invertebrate, and vertebrate examples. Global consequences and governmental policies/programs designed to limit the spread of invasives. Same course as ENVR 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4043 Natural Resource Administration and Policy
Prerequisites: Senior standing.
Description: Natural resource policy and legislation; ethics relating to natural resources; natural resource organizations and how they function to include structure, supervision, and financing of federal, state, and private natural resource enterprises. Previously offered as NREM 4343 and FOR 4443. May not be used for degree credit with NREM 5843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4053 Natural Resource Management for Multiple Uses
Description: Ecology and history of public and private lands management pertaining to multiple benefits accrued from natural resources, including recreation, wildlife, forest, soil, air, water and rangeland resources, and the values assigned to each. Previously offered as NREM 4353 and FOR 4553. May not be used for degree credit with NREM 5853.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4093 Natural Resources, People and Sustainable Development (G)
Description: Relationship between people, the land, and associated natural resources in the developing world, including the ecological and cultural basis for resource use and development. Examines issues of traditional agriculture and deforestation, and explores sustainable strategies for land use, resource management, and community development. Includes two-week study abroad component. Previously offered as NREM 4393.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt
General Education and other Course Attributes: International Dimension

NREM 4234 Forest Management and Economics
Prerequisites: NREM 3133, NREM 3224 and AGEC 1113.
Description: Regulation of forest growing stock to meet financial and biological management objectives; stand level optimization; linear programming principles in harvest scheduling; timberland taxation; timberland investment criteria; risk and uncertainty in timberland investment; economics of non-market goods. Previously offered as NREM 4323.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 4333 Forest Resource Management: Planning and Decision-Making
Prerequisites: NREM 4234.
Description: Integrated problem solving, to apply biological, quantitative, economic, political, and administrative principles in solving forest resource management problems. Previously offered as FOR 4333.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 4403 Wetland Ecology and Management
Prerequisites: NREM 3012 and NREM 3013, or BIOL 3034 or consent of instructor.
Description: Ecology, classification, restoration, and management of wetlands. Adaptations of wetland plants and animals, structure and function of wetlands, field identification of wetland plants, restoration techniques, wetland classification systems, management and conservation of wetlands, and regulatory processes. Previously offered as COSC 4403 and ZOOL 4403.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 4414 Fisheries Management
Prerequisites: NREM 3012 and NREM 3013, or BIOL 3034.
Description: Techniques and principles involved in management of fishes. Field trip fee required. Previously offered as COSC 4414, ZOOL 4414, and ZOOL 4524. May not be used for degree credit with NREM 5414 or NREM 5433.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 4424 Fisheries Techniques
Prerequisites: NREM 4414.
Description: Research techniques and methodology in fisheries science, including sampling design, habitat measurements, sampling gears and abundance estimation, age and growth analysis, recreational surveys, data analysis, and report writing. No credit for students with credit in NREM 5424. Previously offered as COSC 4424.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 4443 Watershed Hydrology and Water Quality
Description: Processes that comprise the hydrologic cycle and how land use affects those processes and the quantity and quality of water from watersheds, focusing on surface water from forest, range and agricultural watersheds. Measurement and evaluation of water quantity and quality. Previously offered as NREM 4413 and FOR 4813.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 4452 Pond Management
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: Principles and practice of aquatic plant management, pond construction, and maintenance, fish population management, and human factors associated with pond ownership and management. No credit for students with credit in NREM 5452.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4453 Aquaculture
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: Introduction to the principles of freshwater finfish production with an emphasis on warm water species. No credit for student having completed NREM 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4464 Ornithology
Prerequisites: BIOL 1604.
Description: Classification, evolution, distribution, identification, life histories, and morphological, ecological, and behavioral adaptations of birds. Two weekend field trips required. Same course as BIOL 4464. May not be used for degree credit with BIOL 5464, NREM 5564.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt
Additional Fees: NREM 4464 Field Trip fee of $53 applies.

NREM 4522 Wildlife Management Applications and Planning
Prerequisites: NREM 4523 or concurrent.
Description: Applications of wildlife research and monitoring techniques to inventory and assess wildlife populations. Data collection methods, habitat assessment, and management plan development. Field trips required.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Natural Res Eco & Mgmt

NREM 4523 Wildlife Management Techniques
Prerequisites: NREM 3503; ENGL 3323 strongly recommended.
Description: Theoretical and conceptual basis for research and management techniques in wildlife science. Experimental design, wildlife population and habitat analysis, wildlife and vegetation sampling, habitat management techniques, and aging and sexing techniques. Previously offered as COSC 4524, COSC 4523, ZOOL 4523, NREM 4524.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4533 Wildlife Management for Game Species
Prerequisites: NREM 3012 and (NREM 3013 or BIOL 3034) and NREM 3503 and NREM 3523; or instructor permission.
Description: Life history attributes and habitat relationships of game species relative to life history strategies; conservation and management strategies for game species; and federal and state policies influencing game species management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4543 Wildlife Management for Biodiversity
Prerequisites: NREM 3013 and NREM 3503 recommended.
Description: Identification, life history, and conservation management issues affecting non-game species in North America, stressing rare, threatened, and endangered species occurring in Oklahoma. Principles of landscape ecology, wildlife management, and conservation biology applied to management scenarios aimed at recovery of rare species and biodiversity conservation at broad scales. Previously offered as COSC 4543 and ZOOL 4543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4603 Rangeland and Pasture Utilization
Description: Investigation of livestock and forage interactions that impact productivity in the utilization of rangeland and improved pastures. Same course as ANSI 4203. May not be used for degree credit with NREM 5603.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 4613 Rangeland Resources Planning
Prerequisites: 40 semester credit hours including NREM 3613.
Description: Inventory of ranch resources, survey and evaluation of ranch practices, and economic analysis. Development of a comprehensive ranch management plan. Managing rangeland and ranch resources in a social context. Written and oral reports. Field trips required. Same course as ANSI 4973. Previously offered as RLEM 4973 and AGRN 4973.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4741 Wildland Firefighter Training
Description: Training for Type 2 (FFT2) wildland firefighting positions with US government agencies. Provides qualifications to participate in prescribed fire and other wildland fire operations Including: ignition, control, mop-up, suppression, and monitoring.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4783 Prescribed Fire
Prerequisites: NREM 3613.
Description: When to use prescribed fire and how to use prescribed fire to accomplish specific land management objectives. Writing prescribed fire plans, policy and laws, weather, equipment, conducting burns, and post-burn mop-up. Previously offered as RLEM 4983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 4793 Advanced Prescribed Fire
Prerequisites: NREM 4783 or consent of instructor.
Description: Preparing fire plans and executing prescribed fires as the fireboss. No credit for both NREM 4793 and NREM 5793. Previously offered as RLEM 4993.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 4960 Undergraduate Internship
Prerequisites: Consent of instructor.
Description: Supervised internship with an approved natural resource business, government agency, or nongovernment organization, including a diversity of learning opportunities in a work environment. For every hour of credit, 45 hours of work are required. Graded on a pass-fail basis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Natural Res Eco & Mgmt

NREM 4980 Undergraduate Research
Prerequisites: GPA of 2.50 or better and consent of instructor.
Description: Participation in faculty research or execution of a research problem formulated by the student. Previously offered as FOR 4500. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Natural Res Eco & Mgmt

NREM 4990 Special Topics in Natural Resource Ecology and Management
Description: Advanced topics and new developments in natural resource ecology and management. Previously offered as RLEM 4990. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5000 Master's Thesis Report
Description: Independent research planned, conducted and reported in consultation with a major professor. Previously offered as RLEM 5000. Offered for variable credit, 1-12 credit hours, max 12 (Thesis) 4 (Report).
Credit hours: 1-12
Contact hours: Lecture: 1-12 Contact: 1-12
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5013 Herbaceous Plants of the Great Plains
Description: Identification (by sight and dichotomous key), characteristics (vegetative and floral), ecological/agricultural importance, and management of important native range grasses and broadleaf plant families, genera, and species. May not be used for degree credit with NREM 4013.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5020 Graduate Seminar
Description: Special topics in Natural Resource Ecology and Management; philosophy, methods and interpretation of research. Previously offered as RLEM 5020. Offered for fixed credit, 1 credit hour, maximum of 10 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5023 Restoration Ecology
Description: Application of ecological theory to ecological restoration with the goal of improving populations, communities and ecosystems degraded directly or indirectly by human activities. Case studies and applications of ecological principles to restorations across circumstances and systems will be discussed. May not be used for degree credit with NREM 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5030 Special Problems in Natural Resource Ecology and Management
Description: Special problems in areas of natural resource ecology and management other than those covered in the student's thesis research. Previously offered as FOR 5030. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5033 Ecology of Invasive Species
Description: Ecological principles and their application to invasive species. Discussion of population level characteristics and community and ecosystem level effects of a wide variety of taxa including invasive microbial, fungal, plant, invertebrate, and vertebrate examples. Current global consequences and governmental policies/programs designed to limit the spread of invasives. May not be used for degree credit with NREM 4033 or ENVR 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt
Additional Fees: IDEA Tuition (AG) fee of $622 per credit hour applies.

NREM 5043 Ecology and Evolution of Symbiosis
Description: Ecology and evolution of symbiotic and mutualistic interactions in different ecosystems. Theory, current questions, and general patterns involving biotic interactions of plants and animals with other plants, animals, or microbes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5053 Global Ecology and Biogeochemistry
Description: Examines key nutrient pools and transformations in the atmosphere, soils, and hydrosphere, with an emphasis on the role of living organisms in nutrient transformations and fluxes. Emphasis placed on processes relevant to biogeochemical cycles at ecosystem and global scales in reference to aspects of global change.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5063 Production Ecology
Prerequisites: NREM 3012 and NREM 3013, or BIOL 3034.
Description: Mechanisms driving the growth and productivity of terrestrial ecosystems in response to resource availability, genetics, disturbance, and climate. Factors affecting the distribution and productivity of biomes, relationship between leaf area and productivity, effects of diversity on productivity, the proximal causes of increased growth associated with resource additions, and using process models to predict growth. Previously offered as NREM 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5073 Modeling Ecosystem Processes and Species Distributions
Prerequisites: Basic understanding of population ecology and statistics strongly encouraged.
Description: Theories of modeling ecosystem processes and species distributions; model building; applying models with real data. No prior modeling experience is expected. Basic understanding of ecology and statistics strongly encouraged.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5083 Applied Landscape Ecology
Description: Advanced ecology and management of grasslands, shrublands, and forests. Understanding the effects of grazing, fire and other disturbances on biotic and abiotic processes. Vegetation dynamics, wildlife habitat evaluation, woody plant encroachment, rangeland monitoring, and landscape ecology. Field trips required at additional cost to students. Previously offered as NREM 5054.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5130 Topics In Forestry
Description: Advanced study on special topics in forestry. Same course as RLEM 5230. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Natural Res Eco & Mgmt

NREM 5133 Advanced Topics in Forest Biometrics
Prerequisites: NREM 3063 or equivalent; STAT 5013 concurrently or equivalent.
Description: Quantitative description of forest populations and methods for modeling forest growth and development. Sampling techniques for forest populations. Previously offered as FOR 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5193 Spatial and Non-Spatial Database Management
Prerequisites: One course in statistics and programming experience.
Description: Methods of acquiring, managing and analyzing spatial data using geographic information systems. Management of non-spatial data using relational database managers. Development of applications using these tools for evaluating and managing natural resources. Previously offered as SOIL 5193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5234 Forest Management and Economics
Description: Regulation of forest growing stock to meet financial and biological management objectives; stand level optimization; linear programming principles in harvest scheduling; timberland taxation; timberland investment criteria; risk and uncertainty in timberland investment; economics of non-market goods. May not be used for degree credit with NREM 4234.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5313 Human Dimensions of Natural Resources
Description: Principles and applications of managing natural resources in the human social context. Importance of sociology to natural resource management, design of human dimension studies related to use of forest, wildlife, fish, and range resources, complexities and challenges of balancing natural resource sustainability with human needs, and the role of leadership, education, and communication in addressing human-natural resource needs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5333 Forest Recourse Management: Planning and Decision-Making
Prerequisites: NREM 4234.
Description: Integrated problem solving, to apply biological, quantitative, economic, political, and administrative principles in solving forest resource management problems. May not be used for degree credit with NREM 4333.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5403 Advanced Wetland Ecology
Prerequisites: A course in aquatic ecology or wetland management recommended.
Description: Principles and theory of wetland ecology with a focus on wetland processes, functions, and services. Topics include wetland geomorphology, biogeochemistry and hydrology of wetlands, wetland functions and services, wetland development, wetland restoration, water issues, wetland policy, philosophy of wetland management, and educating society about wetlands. Same course as BIOL 5403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5414 Fisheries Management
Prerequisites: NREM 3012 and NREM 3013, or BIOL 3034.
Description: Techniques and principles involved in management of fishes. Field trip fee required. May not be used for degree credit with NREM 4414 or NREM 5433.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5424 Fisheries Techniques
Prerequisites: NREM 4414.
Description: Research techniques and methodology in fisheries science, including sampling design, habitat measurements, sampling gears and abundance estimation, age and growth analysis, recreational surveys, data analysis and report writing. No credit for students with credit in NREM 4424. Previously offered as COSC 5424.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5430 Special Topics in Fisheries
Prerequisites: Consent of instructor.
Description: Advanced study on special topics in fisheries. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5433 Fisheries Science
Prerequisites: NREM 4414 or equivalent or consent of instructor.
Description: Principles of fisheries science as they relate to fish and aquatic biota, their habitats, and the humans who utilize them. Previously offered as COSC 5433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5443 Watershed Hydrology and Water Quality
Description: Processes that comprise the hydrologic cycle and how land use affects those processes and the quantity and quality of water from watersheds, focusing on surface water from forest, range and agricultural watersheds. Measurement and evaluation of water quantity and quality. Intended for graduate students new to the water resources field. No credit for students having completed NREM 4443.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5452 Pond Management
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: Principles and practice of aquatic plant management, pond construction and maintenance, fish population management, and human factors associated with pond ownership and management. No credit for students with degree credit in NREM 4452.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5453 Aquaculture
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: Introduction to the principles of freshwater finfish production with an emphasis on warm water species. No credit for student having completed NREM 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5473 Stream Ecology
Prerequisites: Course in ecology strongly recommended.
Description: Ecology of streams and rivers, physical and chemical properties, biotic assemblages and interactions, ecosystem processes and theories and human impact. Two day field trip required at additional costs to students. Previously offered as NREM 5464.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5483 Ecohydrology
Prerequisites: Ecology course strongly recommended.
Description: Concepts, framework and challenges in ecohydrology. Soil water control on vegetation structure, function and distribution. Vegetation feedback on water budget in water limited ecosystems. Ecological and hydrological interaction associated with land use, land cover change and climate variability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5493 Social Dimensions in Aquatic Ecology
Prerequisites: Consent of instructor.
Description: Role of humans as implementers of policy, as users of resources, and as scientists in aquatic ecology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5513 Applied Wildlife Behavior
Description: Importance of wildlife behavior to Individual survival, reproduction, and implications for population ecology, community ecology, conservation, and management. Wildlife Is broadly defined In this class; topics Include habitat selection, dispersal, & migration.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5523 Population Ecology
Prerequisites: BIOL 3034, MATH 1513.
Description: Theory and principles of predicting and analyzing population abundance and dynamics. Life history theory, foraging theory, habitat selection, population genetics, and species interactions. Same course as BIOL 5523.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5530 Special Topics in Wildlife
Prerequisites: Consent of instructor.
Description: Advanced study on special topics in Wildlife. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5533 Occupancy Modeling of Animal Populations
Description: Theory and practice for the use of occupancy modeling in natural resource management and ecological research. Topics covered include estimation of encounter probabilities, study design considerations, single-species single-season models, multi-season models, multi-state models, multi-scale models, false-positive models, and multi-species models.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5564 Ornithology
Description: Classification, evolution, distribution, identification, life histories, and morphological, ecological, and behavioral adaptations of birds. Two weekend field trips required. May not be used for degree credit with BIOL 4464, NREM 4464. Previously offered as BIOL 5464.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5603 Rangeland and Pasture Utilization
Description: Investigation of lifestock and forage interactions that impact productivity in the utilization of rangeland and improved pastures. May not be used for degree credit with ANSI 4203 or NREM 4603.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5630 Special Topics in Rangeland Science
Prerequisites: Consent of instructor.
Description: Advanced study on special topics in rangeland science. Previously offered as NREM 5660. Offered for variable credit, 1-9 credit hours, maximum of 9 hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5673 Rangeland Resources Watershed Management
Description: Management of anthropogenic activities and physical/biological functions or processes on water and rangeland watersheds. Emphasizes preventative and restorative strategies in a natural resource rangeland setting. Course available online only through distance education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5682 Grassld Plant Identification
Prerequisites: Consent of instructor.
Description: Study and identification of plants that have ecological and/or agricultural importance in the Great Plains. Grassland ecosystems and plant characteristics including forage value, palatability, and utilization by both domestic livestock and wildlife. Cultural and historical uses of grassland. Course available online only through distance education.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5683 Grazing Ecology and Management
Prerequisites: Graduate standing.
Description: Ecological principles of livestock grazing and applications to grazing land management for production and conservation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt
Additional Fees: IDEA Tuition (AG) fee of $610 per credit hour applies.

NREM 5692 Grassland Monitoring and Assessment.
Description: Vegetation sampling theory and plot selection. Quantitative measures used in vegetation analysis, root growth, and utilization. Use of the similarity index, and plant community health and trends for grassland monitoring and assessment. Course available online only through distance education.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt
Additional Fees: IDEA Tuition (AG) fee of $622 per credit hour applies.

NREM 5693 Principles of Forage Quality and Evaluation to Ruminate
Prerequisites: Consent of instructor.
Description: Chemical characteristics of forage components and the laboratory procedures used to evaluate forages for grazing livestock. Interactions with ruminant physiology and digestion that influence forage feeding value. Students should have a strong background in the basic principles of chemistry, ruminant nutrition, and plant physiology. Course available online only through distance education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5713 Grassland Fire Ecology
Description: Ecological effects of fire on grassland ecosystems. Examination of the history of fire, societal use of fire, fire behavior in relation to fuel and weather, and conducting and safety of prescribed burns. Course available online only through distance education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5723 Ecol Fire Dependent Ecosystems
Prerequisites: Any ecology course.
Description: Role of fire and the interactions with land use, weather, and climate change in fire-dependent ecosystems. Responses of species composition, diversity, annual net primary productivity, nutrient cycling, and ecosystem management in diverse ecosystems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5783 Prescribed Fire
Description: When to use prescribed fire and how to use prescribed fire to accomplish specific land management objectives. Writing prescribed fire plans, policy and laws, weather, equipment, conducting burns, and post-burn mop-up. Field trips required. Previously offered as RLEM 5983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5793 Advanced Prescribed Fire
Prerequisites: NREM 4783 or consent of instructor.
Description: Preparing fire plans and executing prescribed fires as the fireboss. No credit for both NREM 4793 and NREM 5793. Previously offered as RLEM 5993.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Natural Res Eco & Mgmt

NREM 5843 Natural Resource Administration and Policy
Description: Natural resource policy and legislation; ethics relating to natural resources; natural resource organizations and how they function to include structure, supervision, and financing of federal, state, and private natural resource enterprises. May not be used for degree credit with NREM 4043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 5853 Natural Resource Management for Multiple Uses
Description: Ecology and history of public and private lands management pertaining to multiple benefits accrued from natural resources, including recreation, wildlife, forest, soil, air, water and rangeland resources, and the values assigned to each. May not be used for degree credit with NREM 4053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

NREM 6000 Doctoral Dissertation
Description: Independent research planned, conducted and reported in consultation with major professor. Previously offered as RLEM 6000. Offered for variable credit, 1-15 credit hours, maximum of 45 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Natural Res Eco & Mgmt

NREM 6010 Advanced Topics and Conference
Prerequisites: MS degree.
Description: Supervised study of advanced topics. A reading and conference course designed to acquaint the advanced student with fields not covered in other courses. Previously offered as RLEM 6010. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Natural Res Eco & Mgmt

Nursing (NURS)

NURS 2003 Cultural Perspectives on Health & Wellness
Description: The purpose of this course is to provide undergraduate students with an interdisciplinary exploration of intercultural competence and culturally diverse perspectives on health and wellness. This course will introduce students to the concepts of cultural diversity and global concepts in relation to health, wellness, and healthcare beliefs and practices. Additionally, students will engage internationally with foreign communities to challenge their own perspectives and deepen their understanding of health and wellness issues in globally diverse settings and population groups.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Independent Study, Lecture, Combined lecture & IS
Department/School: Health Sci, Couns, Couns Psych

NURS 2011 Medical Terminology in Nursing
Prerequisites: Accepted as BSN Major and MICR 2123.
Description: This course introduces the beginning student to the study of medical terminology and vocabulary used in the healthcare field.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3000 Registered Nursing Experience/License
Prerequisites: Associate Degree of Diploma in Nursing plus RN license.
Description: Credit to be determined by a successful passing of the NCLEX (National Council Licensing Exam) and holding a current active Registered Nursing License from a state board of nursing. Offered for variable credit, 1-30 credit hours, maximum of 30 credit hours.
Credit hours: 1-30
Contact hours: Contact: 1-30 Other: 1-30
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Health Sci, Couns, Couns Psych

NURS 3003 Pharmacology in Nursing
Prerequisites: Admittance to Nursing Program.
Description: Presents core drug knowledge, pharmacotherapeutics, pharmacodynamics and pharmacokinetics. Emphasizes dosage calculation and drug classifications by categories affecting various body systems and disease states.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3013 Theoretical and Conceptual Foundations of Nursing
Prerequisites: Admittance into the NURS program or RN to BSN program
Description: Introduction to concepts and theories pertinent to nursing practice in a variety of healthcare environments. Theories are addressed as frameworks for practice. Historical, legal, cultural, economic, and social factors influencing health care are analyzed. Philosophical perspectives related to professional nursing are considered. Strategies are discussed when analyzing and managing ethical dilemmas and the application of these strategies to health and wellness promotion will be examined.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3018 Foundations of Nursing
Prerequisites: Full admittance into the nursing program.
Description: Examines concepts of physiological integrity, psychosocial integrity, safe, effective care environments, and health promotion/ maintenance. Focuses on beginning competencies with an emphasis on health assessment, interpersonal communication, safety, documentation, and selected basic nursing interventions required for clients with acute and chronic health problems.
Credit hours: 8
Contact hours: Lecture: 5 Lab: 9 Contact: 14
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Health Sci, Couns, Couns Psych

NURS 3025 Health Assessment, Wellness and Community Health
Prerequisites: Associate degree or diploma in nursing plus RN license.
Description: Health assessment and its relationship to the prevention and early detection of disease across the life span. Health strategies for communities and diverse populations with social, cultural, environmental, and economic dimensions will be examined. Application of concepts from nursing theorists, core competencies for interprofessional collaborative practice, and the wellness model. Health and wellness promotion in the community will be examined through a clinical component.
Credit hours: 5
Contact hours: Lecture: 3 Lab: 4 Contact: 7
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Health Sci, Couns, Couns Psych

NURS 3033 Cultural Considerations in Health Care
Prerequisites: Admittance into the NURS program or RN to BSN program
Description: Improving cultural awareness, cultural sensitivity and cultural competency among health care professionals. Expands the understanding of cultural diversity in relation to health care beliefs and practices and prepares students to better implement and evaluate individualized plans to improve health care delivery in diverse settings and population groups.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3043 Global and Public Health
Prerequisites: Admittance into the NURS program or RN to BSN program
Description: An introduction of the main concepts of the global health field and explores the impact of professional nursing on the health and well-being of individuals. Overview of principles and goals related to global health, global health issues, burden of disease and interprofessional collaboration to improve health. Students utilize critical reasoning and evidence-based practices. Previously offered as NURS 3034.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3083 Nursing Care of Older Adults
Prerequisites: Admission into RN to BSN program
Description: Examines the effects of aging on older adults, including physiological, psychological, social, and end of life aspects. The course focuses on methods of health promotion, improving quality of life, and access to quality care.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3102 Nursing Pharmacology II
Prerequisites: NURS 3018 Foundations of Nursing, NURS 3013 or NURS 3213 Theoretical and Conceptual Foundations of Nursing, NURS 3002 Pharmacology in Nursing I, and Full admission to NURS program
Description: This course presents advanced drug knowledge, pharmacotherapeutics, pharmacodynamics, and pharmacokinetics with special attention to polypharmacy.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3103 Pharmacology in Nursing II
Prerequisites: NURS 3018 and NURS 3003 and NURS 3013
Description: Presents advanced drug knowledge, pharmacotherapeutics, pharmacodynamics, and pharmacokinetics with special attention to polypharmacy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3115 Maternal and Pediatric Nursing
Prerequisites: NURS 3013 or NURS 3213, NURS 3003, NURS 3118, and Full admission to NURS Program
Description: Explores concepts of nursing theory for the holistic care of child-bearing women, newborns, and children. This course includes clinical rotations and laboratory/simulation experiences in maternal/child and pediatric settings.
Credit hours: 5
Contact hours: Lecture: 3 Lab: 4 Contact: 7
Levels: Undergraduate
Schedule types: Clinical, Lecture, Lecture Clinical
Department/School: Health Sci, Couns, Couns Psych

NURS 3118 Adult Health Nursing I
Prerequisites: NURS 3003 and NURS 3013 and NURS 3018
Description: Provides concept based nursing theory for holistic care of adult clients with health alterations. Includes physical and mental wellness, diagnostic and therapeutic nursing interventions, emphasizing the nursing process and critical thinking to manage acute and chronic health alterations. Provides opportunities to practice nursing skills in simulated and actual medial surgical and mental health clinical settings.
Credit hours: 8
Contact hours: Lecture: 5 Lab: 9 Contact: 14
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Health Sci, Couns, Couns Psych

NURS 3183 Nursing Care of Aging Populations
Prerequisites: Full admission to NURS program.
Description: Explores the physiological, psychological, and social aspects of aging, emphasizing the unique healthcare needs of older adults. The course covers common health related issues in aging adults and discusses strategies for promoting healthy aging, improving quality of life, and providing palliative and end of life care for older adults.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3213 Theoretical and Conceptual Frameworks of Nursing
Prerequisites: Full Admission to the NURS program
Description: Examines nursing theories and their application to nursing practice, education, and research. Students will examine the evolution of nursing theory, the critical analysis of various theoretical frameworks, and their relevance to contemporary nursing practice. Emphasis will be placed on understanding the relationship between theory, research, and evidence-based practice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 3223 Global and Cultural Competency in Nursing
Prerequisites: Admittance into the NURS program or RN to BSN program; and NURS 3018 and NURS 3013 and NURS 3003.
Description: Expands understanding of cultural diversity and global concepts in relation to health care beliefs and practices. Prepares students to improve healthcare delivery in globally diverse settings and population groups. Previously offered as NURS 3224.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4013 Healthcare Policy, Finance and Regulatory Environments
Prerequisites: Associate degree or diploma in nursing plus RN license. NURS 3013, NURS 3025, NURS 3033, NURS 3034.
Description: Provides information, perspectives and strategies that nurses need to develop the capacity and skills to influence reform, quality of care and access to health. Active learning strategies include individual and group learning experiences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4023 Trends and Issues in Nursing
Prerequisites: Admittance into the NURS program or RN to BSN program
Description: An overview of the evolution of nursing as a profession while introducing students to their role as scholarly practitioners. Examination of changes in the U.S. healthcare system, the importance of information technology and measures that promote quality, safety and improved outcomes in patient care as well as issues and trends in contemporary practice, the importance of interprofessional collaboration and the influence of socioeconomic, ethical, legal and professional values.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4034 Leadership and Management in Nursing
Prerequisites: Associate degree or diploma in nursing plus RN license. NURS 3013, NURS 3025, NURS 3033, NURS 3043, all with a minimum grade of "C".
Description: Examination of selected leadership and management theories and processes critical to a work environment that is efficient, effective, and committed to quality nursing care. Emphasis on the key skills employed by successful nurse leaders/managers. Utilizes a clinical component to prepare graduates for an entry position into the professional nurse manager role. Previously offered as NURS 4033.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Health Sci, Couns, Couns Psych

NURS 4043 Nursing Research and Evidenced-Based Practice
Prerequisites: Admittance into the NURS program or RN to BSN program
Description: Basic understanding of the research process and its application to nursing and evidence-based practice. Includes appraisal of literature, research design, and statistical methods and analysis. Qualitative, quantitative, and mixed methodology research, data summarization, and principles of measurement will be reviewed. Particular emphasis on ethics and the rights and responsibilities toward human subjects are examined.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4050 RN-BSN Capstone
Prerequisites: Associate degree or diploma in nursing plus RN license. NURS 3013, NURS 3025, NURS 3033, and NURS 3043, all with a minimum grade of "C". May take concurrently with NURS 4023, NURS 4034 and NURS 4043..
Description: Implementation of knowledge from the RN-BSN curriculum and application of evidence-based practice while utilizing inter-professional collaboration, leadership, management, ethical decision making, healthcare policy at the local, state and global levels, informatics, health, wellness and research. Engagement in community activities promoting health and wellness and the advancement of the role of the baccalaureate prepared registered nurse. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4054 Nursing Capstone and Transition to Practice
Prerequisites: NURS 4116 and NURS 4043 and HLTH 4783.
Description: As a capstone course, students apply knowledge from the BSN curriculum and engage in activities utilizing evidence-based practice; integrate healthcare policy at the local, state and national levels. Highlights the influence of professional values on the role of the professional nurse. Application of critical thinking, communication, and therapeutic nursing interventions to demonstrate readiness for the NCLEX-RN.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4113 Nursing Care of the Family and Community
Prerequisites: NURS 3118 and Full admission to the NURS program
Description: Explores and applies the role of the nurse in the provision of holistic care of families, communities, and vulnerable populations. Course includes clinical rotations and simulations focusing on disease management and wellness promotion to vulnerable populations in community settings.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Clinical, Lecture, Lecture Clinical
Department/School: Health Sci, Couns, Couns Psych

NURS 4116 Adult Health Nursing II
Prerequisites: NURS 3118
Description: Provides concept-based nursing theory for holistic care of adult clients with critical health alterations. Clinical focuses on providing high acuity nursing care in critical care clinical settings.
Credit hours: 6
Contact hours: Lecture: 3 Lab: 9 Contact: 12
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Health Sci, Couns, Couns Psych

NURS 4122 Trends and Topics in Nursing
Prerequisites: NURS 3013 or NURS 3213 Theoretical and Conceptual Foundations of Nursing and full admission to the NURS program
Description: Focuses on current and emerging topics, challenges, and innovations that directly affect the professional nurse and the healthcare environment. Explores ethical considerations, professional development, and the future direction of nursing in a rapidly changing healthcare environment.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4136 Essentials of Nursing Leadership
Prerequisites: NURS 4116 and NURS 4043 and HLTH 4783.
Description: Examines selected theories and processes critical to a work environment that are efficient, effective, and committed to quality nursing care. Utilizes a clinical component to prepare graduates for an entry position into the professional nurse leader/manager role.
Credit hours: 6
Contact hours: Lecture: 3 Lab: 9 Contact: 12
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Health Sci, Couns, Couns Psych

NURS 4143 Research and Evidence-Based Practice in Nursing
Prerequisites: NURS 3013 or NURS 3213, and full admission to the NURS program
Description: Introduces the principles and methods of research in nursing. Focuses on the development of critical thinking and analytical skills necessary to evaluate and apply research findings to clinical practice. Students will explore various research designs, methodologies, and statistical analyses used in nursing research. The course also covers the ethical considerations in conducting research and the role of evidence-based practice in improving patient outcomes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4216 Family and Community Health Nursing
Prerequisites: NURS 3118 and NURS 4043 and NURS 3223 and NURS 3102
Description: Provides concepts of nursing theory for the holistic care of child-bearing women, newborns, children, older adults, families and the communities in which they live. Clinical focuses on health and wellness promotion, providing nursing care to vulnerable populations in a variety of settings. Previously offered as NURS 3218.
Credit hours: 6
Contact hours: Lecture: 3 Lab: 9 Contact: 12
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Health Sci, Couns, Couns Psych

NURS 4242 Nursing Informatics
Prerequisites: NURS 4116 and NURS 4216 and NURS 4023
Description: Provides an overview of electronic information related to health sciences. Focuses on the use of technology-based health applications to support clinical, administrative, and educational decision-making.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4243 Nursing Informatics
Description: Provides an overview of nursing informatics, focusing on the integration of nursing science, information science, and computer science to manage and communicate data, information, and knowledge in nursing practice. Students will learn about the role of informatics in improving patient care outcomes, enhancing clinical decision-making, and promoting efficient healthcare delivery.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

NURS 4333 Mental Health Nursing
Prerequisites: NURS 3018, NURS 3002, and Full admission to the NURS program
Description: Mental Health Nursing examines and applies concepts of nursing theory for holistic care of clients with mental health alterations. This course includes opportunities to provide nursing care in simulated experiences and clinical settings.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Clinical, Lecture, Lecture Clinical
Department/School: Health Sci, Couns, Couns Psych

NURS 5403 Student Success in Nursing Education
Prerequisites: Admission to the OSU MSN Nursing Graduate Program and completion of MSN core courses.
Description: This course explores strategies to promote student success, retention, and professional development in nursing education. The course prepares future nurse educators to create supportive, inclusive learning environments that optimize academic achievement and progression in nursing programs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Sci, Couns, Couns Psych

Nutritional Sciences (NSCI)

NSCI 2001 Fad or Fact: The Real Scoop on Nutrition Trends
Description: This course pulls back the curtain on nutrition fads, diet myths, and trending health claims. Students will critically evaluate current nutrition trends, from supplements to fad diets, and learn to separate hype from science. No prior nutrition or science background is needed—just curiosity and a willingness to ask, 'Is that true?' Through media analysis, myth-busting, and research literacy, students will gain the tools to make informed decisions about nutrition and wellness.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences
General Education and other Course Attributes: Natural Science Reasoning

NSCI 2011 Applied Principles of Human Nutrition
Prerequisites: Past completion of or concurrent enrollment in NSCI 2013 and must be majoring or minoring in NSCI.
Description: Application of human nutrition concepts in the form of diet, metabolism, and behavioral measurement.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Nutritional Sciences

NSCI 2013 Principles of Human Nutrition (N)
Description: Functions of the nutrients in human life processes. Nutrient relationship to health as a basis for food choices. Open to all University students. Previously offered as NSCI 2123, NSCI 2114 and FNIA 1113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences
General Education and other Course Attributes: Natural Science Reasoning
Additional Fees: HS ConCur OL Res Tuit EHS fee of $189.10 per credit hour applies.

NSCI 2021 The Art of Patient Care: Communication and Compassion in Healthcare
Description: This 8-week course explores the interpersonal and emotional components of patient care, emphasizing compassionate communication, cultural humility, building trust, and collaborative practice. Through case studies, simulations, role-play, and reflection, students will learn to navigate real-world challenges in healthcare communication and interactions.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 2111 Professional Careers in Nutritional Sciences
Prerequisites: For students interested in Allied Health, Community Nutrition or Nutrition and Exercise or consent of instructor.
Description: Career opportunities in health professions. Roles and responsibilities of health care professionals. Routes to professional memberships and current issues in professionalism. Previously offered as FNIA 2111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 2112 Foods of the African Diaspora: Chronology, Evolution and Impact
Description: An exploration of the evolution of African American foodways and their physical health impacts within the historical contexts of slavery, emancipation, cultural development, religion, and traditional health beliefs.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 2211 Professional Careers in Dietetics
Description: Career opportunities in food, nutrition and dietetics. Roles and responsibilities of nutrition and dietetics professionals. Routes to professional memberships and current issues in professionalism.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 2311 Introduction to Public Health Nutrition
Description: Overview of Public Health Nutrition with an emphasis on how biological, social, economic, and political factors affect nutrition and health status of populations.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 2412 Introduction to Nutrition & Food Literacy
Prerequisites: NSCI 2013 or consent of instructor.
Description: Application of nutrition education principles and public health approaches for planning, purchasing, preparing and preserving healthy affordable foods to improve health outcomes.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 3 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Nutritional Sciences

NSCI 2850 Special Topics in Nutritional Sciences
Description: Study of specific consumer education issues or topics in nutritional sciences. Offered for variable credit, 1-3 credit hours, maximum of 4 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 3011 Nutrition and Evidence-based Practice I
Prerequisites: NSCI 2013 and STAT 2013 or STAT 2023.
Description: Understanding basic research designs and methodologies, ethics in research, and the use of research in the development of evidence-based recommendations for healthy individuals, applying statistics, and interpreting data in nutrition research.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 3021 Nutrition and Evidence-based Practice II
Prerequisites: BIOL 3204 or (BIOL 3203 and 3201) and minimum grade of "C" in NSCI 3011.
Description: Understanding research focused on pathophysiology of chronic disease and the role of nutrition in the prevention and treatment of these diseases. Course builds on an understanding of physiology and of nutrition research from BIOL 3204 and NSCI 3011. Ethics in research.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 3133 Science of Food Preparation
Prerequisites: HTM 1113 or NSCI 3993 and NSCI 2013, and CHEM 3013. "C" or better in NSCI 3993.
Description: Scientific principles underlying functions of food ingredients, recipe/menu modification, diet management for disease states and food safety.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Nutritional Sciences

NSCI 3223 Nutrition Across the Life Span
Prerequisites: NSCI 2013 or equivalent.
Description: Nutritional needs and dietary concerns of individuals from conception through old age. Previously offered as NSCI 4223 and FNIA 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 3312 Nutrition Care Process and Assessment
Prerequisites: NSCI 3223 with minimum grade of “C”, BIOL 3204 or (BIOL 3203 and 3201) or concurrent, and Option in DIET or consent of instructor.
Description: Familiarity and application of the Nutrition Care Process - a systematic approach to providing quality nutrition care. The student will also be introduced to and be able to apply medical terminology and nutrition assessment practices in the Nutrition Care process.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 3440 Nutritional Sciences Pre-Professional Experience
Prerequisites: Major in Nutritional Sciences.
Description: Student-arranged, instructor-approved, job shadowing, work or volunteer experience in professional settings related to the Nutritional Sciences option. Forty hours of experience required per credit hour. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 3543 Food and the Human Environment (GS)
Description: Impact of the various factors that affect food availability, production, processing, distribution and consumption of food in the world. International cultures and foods. Challenges of and solutions to the world food crisis. Previously offered as FNIA 3543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences
General Education and other Course Attributes: International Dimension, Society & Human Behavior

NSCI 3733 Environmental Nutrition
Prerequisites: NSCI 2013.
Description: Evidence-based examination of agricultural production, food systems, and sustainability on food, nutritional quality, and societal health, from harvest to health.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 3813 Nutrition Counseling
Prerequisites: NSCI 2013 and NSCI 3223 and NSCI 3312 and HDFS 2113 and PSYC 1113 or consent of instructor. "C" or better in NSCI 2013, NSCI 3223 and NSCI 3312.
Description: Theory and practice of counseling and interviewing skills as applied to nutrition counseling. Previously offered as NSCI 3812.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Nutritional Sciences

NSCI 3993 Culinary Principles in Nutrition
Prerequisites: Limit to all options in Nutritional Sciences.
Description: Familiarity and application of techniques and theories of food preparation including use and selection of equipment, sanitation and quality controls.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Nutritional Sciences

NSCI 4021 Nutrition and Evidence-based Practice III
Prerequisites: NSCI 3021. "C" or better in NSCI 3021
Description: In-depth study of major controversial issues in the field of nutrition. Course builds on understanding of nutrition research from NSCI 3011 and 3021. Review and analysis of current research. Ethics in research.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4023 Nutrition in the Pathophysiology of Chronic Disease
Prerequisites: NSCI 2013, NSCI 3011, NSCI 3223 and BIOL 3204 or (BIOL 3203 and 3201). "C" or better in NSCI 3011 and NSCI 3223.
Description: Analysis of the role of dietary bioactive components in health maintenance and chronic disease prevention. Communication of evidence-based nutrition information to the public.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4040 International Studies in Food and Culture
Description: Development of analytical and interpersonal skills for understanding food systems, dietary patterns, and nutritional practices across global communities. Students examine how historical influences and contemporary dynamics shape food cultures, nutritional beliefs, and eating practices internationally. Course explores regional food traditions, and nutrition-related challenges and innovations worldwide. Students will identify opportunities for collaboration in addressing global food security, nutrition education, and sustainable food nutrition practices. LEC 1-6, Max 6
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4111 Professional Preparation for Careers in Dietetics
Prerequisites: NSCI 4854 or concurrent, or consent of instructor. "C" or better in NSCI 2211, NSCI 3011, NSCI 3543, NSCI 3813 and NSCI 3993.
Description: Preparation of supervised practice applications and supporting documents. Options for professional credentials, graduate school, and careers. Professional issues in dietetics.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4123 Human Nutrition and Metabolism I
Prerequisites: NSCI 2013 and (CHEM 3013 or CHEM 3053); BIOL 3204 or (BIOL 3203 and 3201); or consent of instructor.
Description: Examine the chemical characteristics and functions of macronutrients; digestion, absorption, transport and metabolism of macronutrients; control of intermediary metabolism and metabolic pathways. May not be used for degree credit with NSCI 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4133 Nutrition for Exercise and Sport
Prerequisites: NSCI 2013.
Description: Application of principles of nutrient metabolism as they relate to physical activity, sport and health. Strongly recommend a background including NSCI 4123 and BIOC 3653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4143 Human Nutrition and Metabolism II
Prerequisites: NSCI 4123, minimum grade of “C” or consent of instructor.
Description: Chemical characteristics, absorption, transport, functions, requirements and health implications of vitamins and minerals. Discussion of phytochemicals and supplements in relation to health maintenance and disease prevention. No credit for students with degree credit in NSCI 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4313 Dietary and Herbal Supplements
Prerequisites: NSCI 2013 and NSCI 3021 and BIOL 3204 or (BIOL 3203 and 3201) or instructor approval.
Description: Explore the safety and efficacy of botanical/herbal and dietary supplements in health applications including dietary supplementation in the prevention and treatment of chronic disease.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4323 Human Nutrition and Metabolism
Prerequisites: BIOL 3204 or (BIOL 3203 and 3201) and NSCI 2114 and BIOC 3653 or concurrent, or consent of instructor.
Description: Digestion, absorption and metabolism of nutrients; functions and health implications in the human organism. Previously offered as FNIA 4323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4331 Quantity Food Production Practicum
Prerequisites: NSCI 2013, NSCI 3993 and NSCI 4573 with a grade of "C" or better. Restricted to DIET option.
Description: Observation and practice in real-life-quantity food production settings. Students will need immunizations, TB tests, and background checks completed before the semester of enrollment in the course.
Credit hours: 1
Contact hours: Lab: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lab
Department/School: Nutritional Sciences

NSCI 4373 Principles of Nutrition Education and Behavior Change
Prerequisites: NSCI 2013 and NSCI 3021 and NSCI 3223 or consent of instructor. "C" or better in NSCI 3021 and NSCI 3223.
Description: Analysis of various methods, strategies, theories, resources and evaluation methods for nutrition education. Principles of behavior change and effective nutrition counseling. Overview of public health nutrition programs. Previously offered as FNIA 4373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4573 Management in Dietetics
Prerequisites: ACCT 2103 or ACCT 2003; and NSCI 3993 or HTM 1113 or HTM 1114.
Description: Management practices in the field of dietetics including program, clinical and food systems management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: NSCI 4573 Consumable fee of $20 applies.

NSCI 4632 Community Nutrition I
Prerequisites: NSCI 3223 or consent of instructor. "C" or better in NSCI 2211, NSCI 3011, NSCI 3543, NSCI 3813.
Description: Application of nutrition epidemiological, environmental and program assessment practices in community nutrition settings. Field work required.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4633 Community Nutrition II
Prerequisites: NSCI 2013 and NSCI 3223 and NSCI 4632 or consent of instructor. "C" or better in NSCI 4632.
Description: Application of nutrition, education, communication and evaluation principles to planning and implementing community nutrition programs and services. Field work required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4643 Capstone for Nutritional Sciences
Prerequisites: Senior standing in NSCI or consent of instructor.
Description: Integration of the body of knowledge in nutritional sciences. Examination of the research basis for defining and solving critical issues. Oral and written reports.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4850 Special Unit Studies in Nutritional Sciences
Description: Special units of study in nutritional sciences. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 4854 Medical Nutrition Therapy I
Prerequisites: NSCI 3223 and NSCI 3813 and NSCI 4123 or concurrent enrollment. "C" or better in NSCI 3813 and NSCI 4123
Description: Physiological and metabolic bases for dietary modifications in disease states. Previously offered as NSCI 4853.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4864 Medical Nutrition Therapy II
Prerequisites: NSCI 4854. "C" or better in NSCI 4854.
Description: A continuation of NSCI 4854, Medical Nutrition Therapy I. Previously offered as NSCI 4863 and NSCI 4852.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 4900 Honors Creative Component
Prerequisites: College of Human Sciences Honors Program participation, senior standing.
Description: Guided creative component for students completing requirements for College Honors in College of Human Sciences. Thesis, creative project or report under the direction of a faculty member in the major area, with second faculty reader and oral exam. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Nutritional Sciences
General Education and other Course Attributes: Honors Credit

NSCI 4913 Nutritional Epidemiology
Prerequisites: Junior standing, STAT 2013 and HLTH 3723 and NSCI 2013 with a minimum grade of "C", or consent of instructor.
Description: Assessing the impact of nutrition and physical activity on health outcomes from an epidemiological perspective. Attention will be given to understanding the spectrum of study designs, including their benefits and drawbacks, used to examine this relationship.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5000 Master's Thesis
Prerequisites: Consent of adviser.
Description: Individual research and thesis that will fulfill the requirements for the master's degree. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 5003 Diabetes Medical Nutrition Therapy
Prerequisites: Admission to MS in Dietetics.
Description: An in-depth study of diabetes management with emphasis in nutrition care. Topics will include diabetes pathophysiology, clinical care guidelines, basic pharmacology, clinical nutrition education and counseling strategies, and nutrition care planning. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5011 Special Topics in Nutritional Sciences
Prerequisites: NSCI graduate standing.
Description: Orientation to graduate study and research in nutritional sciences.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5012 Public Policy Development in Food, Nutrition and Related Programs
Description: Rationale underlying governmental programs in food and nutrition and human sciences and assessment of the effectiveness of the programs.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5013 Financial Management and Cost Controls in Dietetics
Prerequisites: Admission to Great Plains IDEA online MS in Dietetics or consent of instructor.
Description: An overview of accounting, cost controls, and financial management in food service. Special emphasis placed on understanding the topics and applying them to the theoretical and/or practical research for food service systems. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5023 Advanced Nutrition in the Pathophysiology of Chronic Disease
Prerequisites: NSCI 2114, NSCI 3011, NSCI 3223 and BIOL 3204.
Description: In-depth study of the pathophysiology of chronic diseases and the role of dietary bioactive components in health maintenance and disease prevention.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5033 Macronutrients in Human Nutrition
Prerequisites: Biochemistry and advanced human nutrition/metabolism, or consent of instructor.
Description: Characteristics, biological roles, digestion, absorption, transport and metabolism of the macronutrients. Previously offered as NSCI 6023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5043 Micronutrients in Human Nutrition
Prerequisites: NSCI 5033 or consent of instructor.
Description: In-depth study of vitamins and minerals and their interrelationships in metabolism. Previously offered as NSCI 6123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5053 Functional Foods for Chronic Disease Prevention
Prerequisites: Admission to Great Plains IDEA MS in Dietetics or consent of instructor.
Description: Integrate and evaluate the regulatory principles, food science, nutrient science and nutritional metabolism for the development of functional foods, nutraceuticals, and dietary supplements for chronic disease prevention. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5063 Food Culture
Prerequisites: Admission to MS in Dietetics.
Description: Survey of topics that affect how we perceive food in the modern world. Students examine food as a badge of cultural identity, a focus of media scrutiny and promotion, a symbol of religion, and a driver of technology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5073 Nutrition Therapy for Eating Disorders
Prerequisites: Admission to Great Plans IDEA MS in Dietetics. Medical Nutrition Therapy or consent of instructor.
Description: Study of eating disorders management and nutrition care. Topics will include eating disorders medical complications, clinical care guidelines, basic pharmacology, clinical nutrition education, nutrition care planning, psychology of eating disorders, team collaboration, and therapeutic modalities for nutrition counseling. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5103 Grant Writing for the Professional
Prerequisites: Admission to the Great Plains IDEA online MS in Dietetics or consent of instructor.
Description: Grant proposal preparation experience including written critique of proposals and budget planning. Designed for the working professional. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5123 Research Approaches and Translation in Nutritional Sciences
Description: Basic components of the research process in nutritional sciences, critical interpretation, and translation to practice applications for nutrition professionals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5133 Advanced Nutrition for Exercise and Sport
Prerequisites: Intro nutrition and biochemistry or consent of instructor.
Description: Advanced study of nutrition and metabolism relating to physical activity, sports and health.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5203 Nutrition in Wellness
Prerequisites: Admission to the Great Plains IDEA online MS in Dietetics or consent of instructor.
Description: Wellness promotion through nutrition. Nutritional risk and protective factors will be examined as they relate to public health and individual nutrition. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5210 Contemporary Issues in Food Service
Prerequisites: Admission to the Great Plains IDEA online MS in Dietetics program or consent of instructor.
Description: Contemporary issues in food service in dietetics; formulation of innovative solutions and processes to enhance effectiveness in the work place. Previously offered as NSCI 5211. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Contact: 3-9 Other: 3-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 5213 Entrepreneurship in Food Service and Dietetics
Prerequisites: Admission to Great Plains IDEA online MS in Dietetics.
Description: An overview of entrepreneurship, characteristics of entrepreneurs and small business development within the context of food service and dietetics. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5223 Advanced Nutrition Across the Life Span
Prerequisites: Admission to the Great Plains IDEA online MS in Dietetics.
Description: Examination of the influence of normal physiological stresses on nutritional needs throughout the life span. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5240 Contemporary Issues in Nutrition
Prerequisites: Enrolled in Great Plains IDEA online MS in Dietetics.
Description: Contemporary issues in nutrition. Web-based instruction. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Contact: 3-9 Other: 3-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 5303 Human Nutrition and Metabolism I
Prerequisites: Introductory nutrition, organic chemistry, physiology or consent of instructor.
Description: Examine the chemical characteristics and functions of macronutrients; digestion, absorption, transport and metabolism of macronutrients; control of intermediary metabolism and metabolic pathways. No credit for students with degree credit in NSCI 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5313 Dietary and Herbal Supplements
Prerequisites: Introductory nutrition and human physiology; or consent of instructor.
Description: Explore the safety and efficacy of botanical/herbal and dietary supplements in health applications including dietary supplementation in the prevention and treatment of chronic disease.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5323 Physical Health, Nutrition, Wellness and Active Aging
Description: Normative biological and physiological changes due to aging are identified with a focus on how environmental factors such as physical activity and nutrition can support health aging and prevention of frailty and age-related diseases. Multiple facets of active aging that can augment quality of life will be examined. Resources for implementation of inclusive programs for diverse groups of aging adults will be explored. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5353 Human Nutrition and Metabolism II
Prerequisites: Introductory nutrition, organic chemistry, biochemistry and physiology.
Description: Chemical characteristics, absorption, transport, functions, requirements and health implications of vitamins and minerals. Discussion of phytochemicals and supplements in relation to health maintenance and disease prevention. No credit for students with degree credit in NSCI 4143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5363 Maternal and Child Nutrition
Prerequisites: NSCI 2114 or equivalent.
Description: Nutritional needs and dietary concerns during pregnancy, lactation, infancy and childhood through puberty. Discussion of implications for nutrition intervention, family education and policy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5373 Childhood Nutrition
Prerequisites: Admission to MS in Dietetics.
Description: The physiological, biochemical, and nutritional aspects of disease processes relevant to infants and children up to 18 years of age. Discussion of medical nutrition therapy for a variety of medical conditions found in this population including inborn errors of metabolism, food hypersensitivity, obesity, and diseases of the major organ systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5393 Nutrition and Aging
Prerequisites: NSCI 2114 or equivalent.
Description: Nutritional needs, and dietary concerns of the elderly. Implications for food and nutrition programs, policies, research and education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5403 Contemporary Issues in Dietetics Practice
Description: Contemporary management practices in the field of dietetics including innovative solutions and processes in program, clinical and food systems management. Online, asynchronous format.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5412 Dietetic Internship Management Practicum
Prerequisites: Acceptance as a dietetic intern.
Description: Supervised learning experiences in approved food service management for the achievement of performance requirements for entry level dietitians. Graded on a pass-fail basis. Previously offered as NSCI 5440.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 5422 Dietetic Internship Clinical Practicum
Prerequisites: Acceptance as a dietetic intern.
Description: Supervised learning experiences in approved clinical for the achievement of performance requirements for entry level dietitians. Graded on a pass-fail basis.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 5432 Dietetic Internship Community Nutrition Practicum
Prerequisites: Acceptance as a dietetic intern.
Description: Supervised learning experiences in approved community nutrition settings for the achievement of performance requirements for entry level dietitians. Graded on a pass-fail basis.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 5443 Precision Nutrition
Prerequisites: For graduate students in NSCI or by permission of the instructor.
Description: Fundamental concepts for understanding, interpreting, and evaluating studies related to precision nutrition. The goal of this course is to help students understand, in depth, the influence of genetics and epigenetics on nutrient metabolism, and the implications for human metabolic diseases such as cardiovascular disease and cancer. We will also review the current evidence, uncertainties and controversies, and future directions in precision nutrition.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5453 Nutrition and Health Disparities
Prerequisites: Lifespan nutrition; or Consent of Instructor.
Description: Examination of nutrition and health disparities in the U.S. Identification of sociocultural determinants of health and their influence on nutrition and health outcomes. Exploration of interdisciplinary strategies to reduce nutrition and health disparities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5473 Pediatric Clinical Nutrition
Prerequisites: Admission to Great Plains IDEA MS in Dietetics or consent of instructor.
Description: Examination of the physiological, biochemical and nutritional aspects of disease processes relevant to infants and children up to 18 years of age. Medical nutrition therapy for a variety of medical conditions found in this population including inborn errors of metabolism, food hypersensitivity, obesity and diseases of the major organ systems. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5513 Public Health Nutrition
Prerequisites: Admission to Great Plains IDEA MS in Dietetics or consent of Instructor.
Description: Information and activities related to public health nutrition with focus on how nutrition research, policies and programs impact populations. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5543 Obesity Prevention Across the Lifespan
Prerequisites: Introductory and lifespan nutrition; or consent of instructor.
Description: Obesity in the population from childhood to the adult age groups. Examination of the impact of obese conditions on disease development throughout the life span. Critical analysis of prevention efforts and interventions used in the behavioral and clinical management of overweight and obese individuals in community and clinical settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5553 Global Nutrition and Food Security
Description: Advanced study of the magnitude, causes, and nature of hunger and under-nutrition in low income countries; emphasis on programs, policies and planning directed toward alleviating hunger and malnutrition.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5563 Nutritional Assessment
Prerequisites: Lifespan nutrition, human nutrition & metabolism, or equivalent.
Description: Dietary, physical, and biochemical assessment techniques and their application to patient or client nutritional status assessment in health care systems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5603 Statistical Methods in Dietetics
Prerequisites: Admission to MS in Dietetics.
Description: The elementary tools that are commonly used in making statistical decisions in the field of dietetics. Understanding of data and the methods used to analyze such data particularly as it pertains to the dietetics profession. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5613 Nutrition Education and Behavior Change
Prerequisites: Consent of instructor.
Description: Analysis and practice of various learning and behavior change theories and application for understanding and/or modifying eating behavior, diet, and related health indices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5643 Advanced Medical Nutrition Therapy
Prerequisites: Admission to dietetic internship or consent of instructor.
Description: Physiological and metabolic bases for nutritional support in disease.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5673 Human Resources
Prerequisites: Admission to Great Plains IDEA online MS in Dietetics or consent of instructor.
Description: Future role, focus, practices and governance of human resources in health care.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5683 Fundamentals of Leadership in Dietetics
Prerequisites: Admission to Great Plains IDEA online MS in Dietetics or consent of instructor.
Description: Study of the key issues in the theory, research, and application of leadership within the context of dietetics practice. Includes defining leadership, understanding situational characteristics that facilitate/hinder effective leadership, understanding effective/dysfunctional leadership, and gaining greater insight into one's own leadership style and functioning. Web-based instruction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5713 Public Health Nutrition and Food Policy
Prerequisites: Consent of instructor
Description: Current issues in the public health and community nutrition with emphasis on the impact of legislative, political, economic, environmental and cultural diversity factors on food systems and nutritional well-being of populations. Application to grant writing, program planning and evaluation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5743 Advanced Laboratory Techniques in Nutritional Sciences
Prerequisites: A course in biochemistry and a course in statistics.
Description: An integrated lecture and laboratory course examining the basic theories and techniques used in experimental nutritional sciences. Application of a range of biochemical and molecular biological techniques as they are currently applied to modern biomedical research.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Nutritional Sciences

NSCI 5753 Health Care Administration
Prerequisites: Admission to MS in Dietetics.
Description: Overview of U.S. and international health care systems. Administrative roles of health care professionals and how they affect patient health and health care delivery in various settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5843 Non-thesis Graduate Capstone
Prerequisites: Final semester and consent of instructor.
Description: A guided course with a research paper and presentation that is the final requirement for graduate students in NSCI's Master of Science degree, non-thesis plan. Not recommended for students interested in pursuing a PhD. Graded on a pass-fail basis. Previously offered as NSCI 5840.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences
Additional Fees: IDEA Tuition fee of $622 per credit hour applies.

NSCI 5870 Problems in Nutritional Science
Description: Analysis of emerging problems and trends in nutritional sciences. Offered for variable credit, 1-4 credit hours, maximum of 6 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 5913 Nutritional Epidemiology
Prerequisites: HLTH 5323 or MPH 5323 or admission to NSCI graduate program, and Introductory Nutrition and Statistics, or consent of instructor.
Description: Assessing the impact of nutrition and physical activity on health outcomes from an epidemiological perspective. Attention will be given to understanding the spectrum of study designs, including their benefits and drawbacks, used to examine this relationship.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 5960 Master's Seminar in Nutritional Sciences
Prerequisites: NSCI graduate students.
Description: Individual and group seminars on current issues and research in nutritional sciences. Previously offered as NSCI 5961. Offered for fixed credit, 1 credit hour, maximum of 2 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Nutritional Sciences

NSCI 5962 Environmental Scanning and Analysis
Prerequisites: Admission to Great Plains IDEA online MS in Dietetics or consent of instructor.
Description: Review of current issues in the economic, social, ethical, political, legal, technological, and ecological environments and the effect of these changes on dietetics practice. Previously offered as NSCI 5963.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 6000 Doctoral Dissertation
Prerequisites: Consent of major professor.
Description: Offered for variable credit, 1-12 credit hours, maximum of 45 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 6022 Advanced Energy Metabolism
Prerequisites: NSCI 5033 and NSCI 5043
Description: Critical discussion and directed study of current literature and concepts in the nutritional control of gene expression and regulation of energy homeostasis from the cellular to organismal level.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 6033 Functional Foods and Phytochemicals
Prerequisites: Advanced human nutrition/metabolism or consent of instructor.
Description: Identification of basic structural, functional and metabolic properties of phytochemicals (substances in plants that have been linked to reducing chronic disease) and their respective food sources. Special attention placed on health benefits and chronic disease risk reduction.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 6223 Nutrition in Immunology
Prerequisites: NSCI 5043 or consent of instructor.
Description: Principles and issues related to nutrition and immunology. Impact of nutrients and nutritional status on integrity of the immune system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 6243 Nutrition and Cancer
Description: Examination of basic cancer biology and methodology used to study nutrition and cancer relationships. The role of nutrition in specific cancers, cancer prevention and cancer treatment will be explored.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 6451 Advanced Grant Writing in Nutritional Sciences
Prerequisites: Admission to the PhD in NSCI and NSCI 5123 or equivalent, or consent of instructor.
Description: Grant writing, identifying external funding and managing grants for nutritional sciences research projects.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 6553 Advanced Grant Writing in Nutritional Sciences
Prerequisites: Admission to the PhD in NSCI and NSCI 5123 or equivalent, or consent of instructor.
Description: Identifying grant funding mechanisms, development of competitive grant proposal, understanding the proposal review process, and managing research grants for nutritional sciences research projects.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 6643 Clinical Aspects of Nutrition Support
Prerequisites: Medical nutrition therapy; or consent of instructor.
Description: Specialized nutrition assessment and support. Review of energy expenditure and substrate utilization in specific disease states. Current methods for the initiation and management of enteral and parenteral nutrition therapy including access, metabolic and mechanical complications. Evaluation of nutrition support methodology in selected disease states.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Nutritional Sciences

NSCI 6870 Independent Study in Nutritional Sciences
Description: In-depth analysis of research issues in nutritional sciences. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Nutritional Sciences

NSCI 6960 Seminar: Emerging Topics in Nutrition
Description: Critical evaluation of research in nutritional sciences. Individual and group seminars on selected topics. Previously offered as NSCI 6961. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Nutritional Sciences

Opportunity Orange Scholars (OOS)

OOS 1000 Scholars Independent Study
Prerequisites: Admission to Opportunity Orange Scholars
Description: Independent study for students within Opportunity Orange Scholars. Independent study will differ depending on the professional and/or personal goals for each student. Not required for all students in Opportunity Orange Scholars. The course is designed to work in conjunction with other Opportunity Orange Scholars courses to promote lifelong learning and advance the knowledge and skills necessary for competitive employment and interdependent living for students who need additional instruction.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Non Credit
Schedule types: Independent Study
Department/School: Human Dev & Family Sci

OOS 1101 Elective I: Relationships 101
Prerequisites: Admission to Opportunity Orange Scholars.
Description: An applied course designed to actively involve students within the Opportunity Orange Scholars program in the exploration of topics which influence the development of positive relationships. Topics include gender differences, relationship principles, family of origin and personal needs. The developmental course is designed to work in conjunction with other Opportunity Orange Scholars courses to promote lifelong learning and advance the knowledge and skills necessary for competitive employment and independent living. Meets with HDFS 1101.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: Opp Orange Pgm Tuition & fee of $656.51 per credit hour applies.

OOS 1111 First-Year Seminar
Prerequisites: Admission to Opportunity Orange Scholars.
Description: Experiences that effectively facilitate transition into student-life at OSU. Career development through connections among the OOS curriculum, electives, career goals, and eventual careers. Analysis of case scenarios. Required of all first semester students of Opportunity Orange Scholars. The developmental course is designed to work in conjunction with other Opportunity Orange Scholars courses to promote lifelong learning and advance the knowledge and skills necessary for competitive employment and independent living. Meets with EDHS 1111 or UNIV 1111. Previously offered as OOS 1112.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: Opp Orange Pgm Tuition & fee of $656.51 per credit hour applies.

OOS 1113 Scholars Seminar I: Introduction to Belonging & Wellbeing
Prerequisites: Admission to Opportunity Orange Scholars.
Description: This course is designed for incoming students in their first semester of the Opportunity Orange Scholars program, and will introduce students to a holistic perspective of health and wellbeing. Coursework will include an introduction to the biopsychosocial-spiritual framework, the concepts of belonging and self-determination, and an introduction to the skills related to developing and maintaining a Circle of Support.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: Opp Orange Pgm Tuition & fee of $656.51 per credit hour applies.

OOS 1121 Navigating Community Supports and Services
Prerequisites: Admission to Opportunity Orange Scholars.
Description: This course is designed for students in the Opportunity Orange Scholars program, enrolled in their first semester. Course content will include navigating the local and state-wide resources available to adults with disabilities such as Developmental Disabilities Services, Department of Rehabilitation Services, Supplemental Security Insurance, along with personal finances, and Medicaid or health insurance. This course will include learning both within and outside of a classroom setting, to ensure students have the opportunity to develop and practice skills in a real-life environment.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci

OOS 1123 Interdependent Living I: Foundational Concepts
Prerequisites: Admission to Opportunity Orange Scholars.
Description: This course is designed for incoming students in their first semester of the Opportunity Orange Scholars program, and will introduce students to skills vital for living an interdependent life. Course content will include an introduction to navigating public transportation, personal finance, and personal care/self-management. This course will include both lecture and lab sessions, providing students the opportunity for real life application (e.g., utilizing public transportation, cooking).
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Non Credit
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Human Dev & Family Sci
Additional Fees: Opp Orange Pgm Tuition & fee of $656.51 per credit hour applies.

OOS 1133 Foundations of Career Exploration and Preparation
Prerequisites: Admission to Opportunity Orange Scholars.
Description: Preparatory course for Opportunity Orange Scholars as an introduction to employment/internship. Introduces students to the concept of employment, careers, and professional goal setting. Lays the groundwork for students to make decisions about career interests, employment supports, and personal employment goals. Required of all first semester OOS students. The developmental course is designed to work in conjunction with other Opportunity Orange Scholars courses to promote lifelong learning and advance the knowledge and skills necessary for competitive employment and interdependent living.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: Opp Orange Pgm Tuition & fee of $656.51 per credit hour applies.

OOS 1200 Elective II
Prerequisites: Admission to Opportunity Orange Scholars.
Description: Individualized elective study for students within Opportunity Orange Scholars. Electives will differ depending on the professional and/or personal goals for each student. Required of all second semester OOS students. The developmental course is designed to work in conjunction with other Opportunity Orange Scholars courses to promote lifelong learning and advance the knowledge and skills necessary for a competitive employment and independent living. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci

OOS 1213 Scholars Seminar II: Advanced Applications of Belonging & Wellbeing
Prerequisites: Admission to Opportunity Orange Scholars.
Description: This course is designed for students in their second semester of the Opportunity Orange Scholars program, and builds on the content provided in OOS 1113 Scholars Seminar I: Introduction to Belonging & Wellbeing. Coursework will include a more in-depth review of biopsychosocial-spiritual health and wellbeing, with an emphasis on application strategies for promoting overall health and wellbeing (e.g., self-determination, Circle of Support).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci

OOS 1223 Interdependent Living II: Application of Foundational Concepts
Prerequisites: Admission to Opportunity Orange Scholars.
Description: This course is designed for students in their second semester of the Opportunity Orange Scholars program, and builds on the content provided in OOS 1123 Interdependent Living I: Foundational Concepts. Course content will provide a continued application of navigating public transportation, personal finance, and personal care/self-management. This course will include both lecture and lab sessions, providing students the opportunity for real life application (e.g., utilizing public transportation, cooking).
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Non Credit
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Human Dev & Family Sci

OOS 1233 Pre-Internship II
Prerequisites: Admission to Opportunity Orange Scholars.
Description: This developmental course focuses on searching, preparing for, and obtaining an internship to be completed during OOS 1333: Internship I and OOS 1433 Internship II. Internship site placements are chosen based on student's individual preferences and long term career goals. This course is a pre-requisite for OOS 1333: Internship I.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci

OOS 1300 Elective III
Prerequisites: Admission to Opportunity Orange Scholars
Description: Individualized elective study for students within Opportunity Orange Scholars. Electives will differ depending on the professional and/or personal goals for each student. Required of all second year OOS students. The developmental course is designed to work in conjunction with other Opportunity Orange Scholars courses to promote lifelong learning and advance the knowledge and skills necessary for competitive employment and independent living.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: Opp Orange Pgm Tuition & fee of $656.51 per credit hour applies.

OOS 1313 Scholars Seminar III: Introduction to Self-Advocacy
Prerequisites: Admission to Opportunity Orange Scholars
Description: This course is designed for students in their third semester of the Opportunity Orange Scholars program, and builds on the content provided in OOS 1213 Scholars Seminar II: Advanced Application of Belonging and Wellbeing. Course work will include a foundational understanding of self-advocacy and the skills needed to effectively advocate for one's personal support needs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: Opp Orange Pgm Tuition & fee of $656.51 per credit hour applies.

OOS 1323 Interdependent Living III: Advanced Concepts
Prerequisites: Admission to Opportunity Orange Scholars
Description: This course is designed for students in their third semester of the Opportunity Orange Scholars program, and builds on the content provided in OOS 1223 Interdependent Living II: Application of Foundational Concepts. Coursework will include a comprehensive review of skills vital for living an interdependent life (i.e., successfully utilizing various forms of public transportation, advance personal finance concepts, weekly meal preparation). This course will include both lecture and lab sessions, providing students the opportunity for real life application (e.g., public transportation, cooking).
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Non Credit
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Human Dev & Family Sci
Additional Fees: Opp Orange Pgm Tuition & fee of $656.51 per credit hour applies.

OOS 1333 Internship I
Prerequisites: Admission to Opportunity Orange Scholars.
Description: Opportunity Orange Scholars students will gain on the job training and professional skills through internship experiences. This course is a pre-requisite for OOS 1433: Internship 2.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci
Additional Fees: Opp Orange Pgm Tuition & fee of $656.51 per credit hour applies.

OOS 1400 Elective IV
Prerequisites: Admission to Opportunity Orange Scholars
Description: Individualized elective study for students within Opportunity Orange Scholars. Electives will differ depending on the professional and/or personal goals for each student. Required of all second year OOS students. The developmental course is designed to work in conjunction with other Opportunity Orange Scholars courses to promote lifelong learning and advance the knowledge and skills necessary for competitive employment and independent living.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci

OOS 1413 Scholars Seminar IV: Advanced Application of Self-Advocacy
Prerequisites: Admission to Opportunity Orange Scholars
Description: This course is designed for students in their final semester of the Opportunity Orange Scholars program and builds on the content provided in OOS 1313 Scholars Seminar III: Introduction to Self-Advocacy. Course work will walk students through the application of self-advocacy skills, as they develop their capstone project. Capstone projects will represent the culmination of skills gains cross all OOS Seminar courses, and will focus on individual students' plan for where to live, work, and play after earning a certificate in Career and Community Studies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci

OOS 1423 Interdependent Living IV: Application of Advanced Concepts
Prerequisites: Admission to Opportunity Orange Scholars
Description: This course is designed for students in their final semester of the Opportunity Orange Scholars program pursuing an academic certificate in Career and Community Studies, and builds on content provided in all other OOS Interdependent Living courses. Coursework will include an advanced review of topics vital to living an interdependent life. This course will include both lecture and lab sessions, providing students the opportunity for real life application (e.g., utilizing public transportation, cooking).
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Non Credit
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Human Dev & Family Sci

OOS 1433 Internship II
Prerequisites: Admission to Opportunity Orange Scholars
Description: Opportunity Orange Scholars students will gain on the job training and professional skills through internship experiences. Students will develop a plan for post internship employment based on skills and experiences gained at their internship sites.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Non Credit
Schedule types: Lecture
Department/School: Human Dev & Family Sci

Organizational Leadership (ORGL)

ORGL 3113 Effective Leadership Communication Skills
Description: This course prepares current and future leaders to be effective communicators in the workplace, emphasizing message clarity, impactful communication, and interpersonal skills development. Students will learn to influence leadership outcomes, build effective teams, and enhance their impact on colleagues through strategic communication strategies and practices. May not be used for degree credit with BCOM 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ORGL 3613 Developing Early-Career Leadership Skills
Description: This course equips students with foundational leadership skills crucial for early career success. It covers theoretical frameworks, practical exercises, and discussions on effective leadership, learn collaboration, coaching, communication, and fostering successful company cultures. May not be used for degree credit with BADM 3113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ORGL 4010 Special Topics In Organizational Leadership
Description: This course introduces students to advanced current issues and topics related to organizational leadership and provides an analysis of a contemporary trending topics dealing with leadership skills. Course content will vary to reflect changing trends and current topics related to the industry.
Credit hours: 1-15
Contact hours: Lecture: 1-15 Contact: 1-15
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

ORGL 4513 Leadership & Organizational Change
Description: This course directs attention to pivotal transformation within organizations, unraveling their structures, and clarifying how leaders can effectively drive these changes. May not be used for degree credit with MGMT 4533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

Petroleum Engineering (PETE)

PETE 4303 Petroleum Rocks and Fluids
Prerequisites: CHEM 1314 or CHEM 1414; MATH 2144 or MATH 2123; PHYS 2014 or PHYS 1114; Co-requisite(s): GEOL 3413 or GEOL 4023.
Description: Topics include rock properties, flow through porous media, principles of organic chemistry; properties of hydrocarbon liquids and gases; multicomponent mixtures; phase behavior; and gas-liquid equilibrium concepts. Previously offered as ENGR 4303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 4313 Drilling and Well Completions
Prerequisites: EEM 4123 and (ENSC 3233 or MET 3313).
Description: Topics include drilling systems; drilling fluids, drilling hydraulics, cuttings transport, drill bits, oilfield pipe, cements and cementing operations, perforating, acidizing, hydraulic fracturing, and oilfield tools. Previously offered as ENGR 4313. May not be used for degree credit with PETE 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 4333 Production Engineering
Prerequisites: EEM 4123 and (ENSC 3233 or MET 3313).
Description: Topics include a review of artificial lift technologies, multi-phase flow, well stimulation, facilities engineering, gas treating, troubleshooting well production, advanced production strategies, industrial special topics and production equipment selection. Previously offered as ENGR 4333. May not be used for degree credit with PETE 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 4343 Reservoir Engineering and Well Testing
Prerequisites: EEM 4123
Description: Topics include reservoir fluid flow, well performance, gas and water coning, water influx, oil recovery mechanisms, oil and gas reservoirs, water flooding, type curve matching, well testing, and buildup and drawdown tests. Previously offered as ENGR 4343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 4990 Special Problems in Petroleum Engineering
Prerequisites: Consent of instructor.
Description: Independent study on specific topics in drilling, production and reservoir engineering. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours.
Credit hours: 1-5
Contact hours: Lecture: 1-5 Contact: 1-5
Levels: Undergraduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5000 Master's Thesis
Prerequisites: Consent of major professor.
Description: Research and thesis writing. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5013 Drilling and Well Completions
Description: Topics include drilling systems; drilling fluids, drilling hydraulics, cutting transport, drill bits, oilfield pipe, cements and cementing operations, perforating, acidizing, hydraulic fracturing, and oilfield tools. Previously offered as ENGR 4313. May not be used for degree credit with PETE 4313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5023 Production Engineering
Description: Topics include a review of artificial lift technologies, multi-phase flow, well stimulation, facilities engineering, gas treating, troubleshooting well production, advanced production strategies, industrial special topics and production equipment selection. Previously offered as ENGR 4333. May not be used for degree credit with PETE 4333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5110 Special Topics in Petroleum Engineering
Prerequisites: Graduate standing and consent of instructor.
Description: Specialized course addressing specific topics in drilling, production, or reservoir engineering. May be repeated for credit if subject matter varies. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5210 Special Topics in Petroleum Engineering
Prerequisites: Graduate standing and consent of instructor.
Description: Specialized course addressing specific topics in drilling, production, or reservoir engineering. May be repeated for credit if subject matter varies. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5243 Enhanced Hydrocarbon Recovery
Prerequisites: PETE 4343 or instructor permission.
Description: This course focuses on the background and necessity for enhanced hydrocarbon recovery, and the working principles (physicochemial aspects) of various conventional and state-of-the-art enhanced hydrocarbon recovery technologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5303 Petroleum Geomechanics
Prerequisites: PETE 4303 or consent of instructor.
Description: Fundamentals of deformation and failure of sedimentary rocks; application of geomechanics in wellbore stability, solids productions, hydraulic fracturing and reservoir geomechanics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5313 Advanced Drilling Modeling and Simulation
Prerequisites: PETE 4313 or consent of instructor.
Description: Advanced coverage of petroleum drilling operations with an emphasis on real-time drilling optimization; rate of penetration (ROP) modeling and simulation; drilling hydraulics with fluid design optimization; use of a simulator to predict ROP for different drills bits through different formations. Previously offered as ENGR 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5333 Advanced Production and Flow Assurance
Prerequisites: PETE 4333 or consent of instructor.
Description: This course covers petroleum production systems and methods used to assure flow through the system. Topics include downhole and surface equipment, transport through pipelines, inflow performance, phase behavior in oilfield equipment, downhole and surface separation, field treating of natural gas, and production enhancement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5343 Advanced Reservoir Engineering
Prerequisites: PETE 4343 or consent of instructor.
Description: Topics include reservoir drive mechanisms, material balance approach to predict oil and gas reservoir properties, fluid flow in porous media, principles of secondary and tertiary recovery methods, analytical and numerical solutions for fluid flow in reservoirs, and well test analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5363 Petroleum Economics and Investments
Prerequisites: (PETE 5333 and PETE 5343) or consent of instructor.
Description: Evaluation techniques for oil and gas properties focusing on economic analyses, reserves estimations and decision making. Evaluate three independent investment opportunities as class projects. Previously offered as ENGR 5363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5373 Advanced Well Stimulation
Prerequisites: Permission of instructor.
Description: Hydraulic fracturing simulation and design. Unconventional resource rock mechanics and hydraulic fracturing concepts. Multistage hydraulic fracturing and fracture treatment analysis. Matrix acidizing and evaluation of treatments through methods of pumping pressure analysis. Previously offered as ENGR 5373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5413 Advanced Well Design and Operational Analysis
Prerequisites: PETE 4313 or consent of instructor.
Description: Topics include information needed to plan oil or gas wells; planning the authorization for expenditures (AFE) budget; use of offset data analysis from logging and drilling for planning; pore and fracture pressure prediction; casing design; wellbore stability, drilling hydraulics, wellbore strengthening considerations in designing the mud weight window; drilling fluids and cements laboratory exercises using latest technologies/materials; completion/stimulation and real time drilling analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5513 Directional Drilling
Prerequisites: PETE 4313 or PETE 5313 or consent of instructor.
Description: Study of directional well planning and drilling; tools and operational techniques used in directional drilling; limiting factors of reaching a predetermined subsurface target.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5613 Advanced Well Completions
Prerequisites: Consent of instructor.
Description: Topics include selection of well completion type, pipe design, well cementing, perforating, selection of surface and downhole equipment, corrosion mitigation, and well stimulation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5713 Wellbore Cement Chemistry and Microstructure
Prerequisites: Consent of instructor.
Description: This course will focus on application of Portland cement-based cement systems in construction of wellbores for the following: conventional & unconventional oil & gas reservoirs; conventional and engineered geothermal systems; injection of brine and/or CO#.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5813 Barrier Materials
Description: This course will examine how we can use geomimicry of shales to design and produce effective long-lasting engineered barrier materials, starting with improving cements. Previously offered as PETE 5110.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 5990 Special Problems in Petroleum Engineering
Prerequisites: Graduate standing and consent of instructor.
Description: Independent study on specific topics in drilling, production and reservoir engineering. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

PETE 6000 Doctoral Thesis
Prerequisites: Consent of major professor.
Description: The doctoral candidate registers for 1-15 semester credit hours each semester during which laboratory work is in process. Methods used in research and thesis writing. An original investigation of a problem in Petroleum Engineering and its report in a dissertation. Offered for variable credit. Offered for variable credit, 1-15 credit hours, maximum of 54 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Chemical Engineering

PETE 6010 Petroleum Engineering Seminar
Description: This seminar course will expose Petroleum Engineering graduate students and members of the OSU academic community to a broad range of current research topics in petroleum engineering and related fields. Offered for variable credit, maximum of 10 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 6110 Advanced Topics in Petroleum Engineering
Prerequisites: Consent of major professor.
Description: Specialized course addressing advanced topics in drilling, production, or reservoir engineering. May be repeated for credit if subject matter varies. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

PETE 6813 Research Methods in Petroleum Engineering
Prerequisites: M.S. or Ph.D. candidacy in petroleum engineering or consent of instructor.
Description: The course covers the required topics to prepare, conduct, document, and communicate an independent research project in Petroleum Engineering. May not be used for degree credit with CHE 5303.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Chemical Engineering

Philosophy (PHIL)

PHIL 1023 Who Do You Think You Are? (H)
Description: Is who you think you are really who you are? Is there more to understanding who we are than we can know with the mind? Are there depths of our personal identity that go beyond our ordinary notions about being "somebody" ? Does discovering who and what I am have any impact on the quality of my life? This course explores these issues from both philosophical and spiritual sources, utilizing practices designed to help bring direct, transformative insights into the question of who and what we really are so that we might enjoy a life of peace, love and joy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 1113 Introduction To Philosophy (H)
Description: This course explores several major philosophical questions, like can we know whether God exists; whether we have free will; what makes an action morally right or wrong; what our ethical obligations are to asylum seekers, Impoverished Individuals across the world, fetuses, terminally ill individuals; what a fair and just society looks like, and more. Previously offered as PHIL 2113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 1213 Philosophies of Life (H)
Description: This course introduces students to the history and development of philosophy with a special focus on ethics and contemporary moral arguments. By studying great philosophical works, this class enables students to think a critical manner about their own ideas and beliefs concerning philosophical problems and important issues that affect our lives. The goal of the course is to aid students in examining multiple perspectives on sometimes controversial topics, evaluate and assess articles on these topics, and allow students to form their own arguments on these issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour, Cowboy Concur OL Res Tuition fee of $189.10 per credit hour, and STW HS Concurrent Enroll Tuit fee of $189.10 per credit hour apply.

PHIL 1313 Logic and Critical Thinking (Q)
Description: Formal and informal reasoning, common fallacies, definitions and language functions, patterns of explanation. Practical criticism and development of everyday arguments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Analytical & Quant Thought
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

PHIL 2003 Local Issues and Ethical Controversies (H)
Description: This course will familiarize students with current and highly debated moral issues that affect their lives and the lives of those in their community. Moral theories will be applied to critical issues that affect Oklahoma and surrounding Southwestern states. Students will learn how to articulate both sides of these debated issues, as well as how to engage in civil discourse with others with whom they may disagree.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 2013 Philosophical Classics (H)
Description: Classic, renowned works by a variety of great thinkers from Plato and Descartes to Berkley, Nietzsche, Dewey, Quine, Nussbaum, West, and many others. As a student you will be engaging with some of the most interesting, thought-provoking ideas in the history of Western philosophy, ranging from the "Allegory of the Cave" and the "Ontological Argument" to existential ethics, pragmatic epistemology and feminist political theory. Previously offered as PHIL 1013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 2043 Philosophy of Film (H)
Description: This course introduces students to the various philosophical issues surrounding film. Topics will include: the nature of cinema, authorship and narration, film's relationship with the emotions, genre, and cinematic depictions of love, violence, race and gender. Various film techniques will also be discussed, including cinematography, lighting, editing, scoring and sound design. These issues will be dealt with by making use of philosophical texts. Course previously offered as PHIL 3723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 2053 Philosophy in Literature (H)
Description: Selected literary works examined for philosophical ideas and themes. Attention to the interrelation of form and content. In this class students will be introduced to major philosophical themes in great literature spanning across a variety of genres, from existential novels and epic poems to science fiction, horror, mystery, drama and more. Course previously offered as PHIL 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 2313 Asking the Right Questions (Q)
Description: We're bombarded with scientific, moral, and political claims that are said to be backed by surveys or studies. Yet the claims frequently contradict each other. We hear that the economy does better when one political party is in charge, and then the next day we hear that it does better when a different party is in power. This course is meant to help students discover when they can trust a claim and the limitations of claims. Students will learn how to understand the logic behind claims and how to separate legitimate claims from those which are illegitimate.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Analytical & Quant Thought

PHIL 2413 Global Ethics (GH)
Description: Issues like poverty, climate change, immigration and the development and distribution of medical treatments can best be understood as global issues. In Global Ethics, students will study a variety of global ethical challenges and learn how those from different countries/cultures understand and respond to these challenges. The goal of this course is not to convince students that one particular viewpoint is correct. Rather, students will be encouraged to determine what they believe is the best way to understand and ethically respond to some of the global ethical issues that currently challenge u
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

PHIL 2443 Ethics: Left & Right (H)
Description: In this course students will explore multiple “sides” of social, political, and moral issues which tend to foster stark divisions in our society. The course aims to cultivate, develop, and practice the skill of engaging openly and fairly with viewpoints that we do not immediately agree with. Students will critically examine arguments from different “sides” of moral issues and political debates, attempting to illuminate strengths and weakness of either.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 2483 Ethics & Sports (H)
Description: This course examines some of the many ethical questions raised by engagement with sport. Some topics to be explored include: the ethics of football In the face of health concerns; the ethics of “doping” or enhancement; what to do about morally problematic team names and mascots; whether it is moral to root for teams with morally problematic individuals; the most ethical approach to compensating athletes; how to foster greater inclusion in sport; and how to use the platform of sport to foster greater inclusion in society more generally.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 2513 Philosophy, Self, & Society (H)
Description: A philosophical investigation of diverse cultural attitudes, values, and experiences. Our central task is to examine different notions of what it is to be human, and we will do so by looking into ethical and religious philosophies that emerge from a range of cultures around the globe. Topics include: the nature of the self, the role of love in human life, mysticism, personhood, ethics and obligation, and aesthetics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 2573 Drugs, Philosophy & Society (H)
Description: This course will explore the various philosophical issues that arise from humankind’s relationship with drug use. Considerable time will be spent analyzing the ethical issues that arise within modern U.S. drug policy. Topics include: arguments for and against drug legalization, the drug war and race, psychedelic drugs and mystical experiences, and the emerging cannabis industry in North America.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 2593 Mystics & Skeptics (H)
Description: This course will explore the complex relationship between mysticism, skepticism, and philosophy. Our exploration of these themes will take us into some classic epistemological problems regarding the limits of reason, and the implications of these limitations for religious faith. Other topics include: theological predication, the problem of divine hiddenness, and religious diversity. Same course as REL 2593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 2890 Honors Experience in Philosophy
Prerequisites: Honors Program participation and concurrent enrollment in a designated PHIL course.
Description: A supplemental Honors experience in Philosophy to partner concurrently with designated Philosophy course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Honors Credit

PHIL 2990 Sophomore Seminar in Philosophy
Prerequisites: 3 credit hours of Philosophy or consent of instructor.
Description: A seminar-style course on varying philosophic topics intended for sophomores, taught by faculty members on a rotating basis. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 3003 Symbolic Logic (Q)
Prerequisites: PHIL 1313 or consent of instructor.
Description: Propositional logic and predicate logic with identity, as well as the formal analysis of language. This includes: understanding and applying common fallacies and irrational techniques of persuasion, formulating proper definitions, looking at the functions of language, analyzing patterns of explanation, and comparing and contrasting informal and formal reasoning. Practical criticism and the development of everyday arguments are also a key part of this course. Previously offered as PHIL 4303. May not be used for degree credit with PHIL 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Analytical & Quant Thought

PHIL 3113 Ancient Greek Philosophy (H)
Prerequisites: PHIL 1113, PHIL 1313 or PHIL 2013, or any 3000-4000 level PHIL course.
Description: This course explores the philosophical inventions of the Ancient Greeks and highlights the contemporary relevance of their ideas for us today. The course covers the physical philosophy of the Presocratics, the dramatic philosophy of Plato, the organic philosophy of Aristotle, and the happy lives of the Epicureans and Stoics. Focus is given to the following questions: What is the structure of reality? How can we know the world? What is the good-life and how can we achieve it? The answers given by the Ancient Greeks are surprisingly still relevant and interesting to us today.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3213 Philosophy in the Age of Enlightenment (H)
Prerequisites: PHIL 1113 or PHIL 1313 or PHIL 2013, or any 3000-4000 level PHIL course.
Description: Major philosophers and problems in Western thought from the 17th through the 18th century. Emphasis on Descartes, Hume and Kant.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3313 19th to 21st Century Philosophy (H)
Description: In this course we cover a wide range of topics and philosophical traditions that have been very influential in the last two centuries of Western philosophy. During this time such movements as pragmatism, deconstruction, romanticism, idealism, phenomenology, feminism, postmodernism, Marxism, and analytical philosophy became prevalent. We will therefore explore such diverse thinkers as Nietzsche, Hegel, Heidegger, Nussbaum, Quine, Butler, Derrida, James, and many more.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3413 Ethical Theory (H)
Description: Contemporary and classical views on the nature of moral judgments, moral value, relativity and objectivity, freedom and responsibility.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3433 Happiness & Well-being (H)
Description: What is happiness? And what is the relationship between a happy life and a good life? The course explores both the science and philosophy of happiness and well-being as well as the relationship between the two.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3513 Social & Political Philosophy (H)
Description: Major social thinkers and contemporary issues. These issues include communitarianism, individualism, power, authority, violence, revolution, liberalism, conservatism, feminism, human rights, freedom, communism, capitalism, and so forth. Many thinkers will be included, such as Aristotle, Locke, Rousseau, Hobbes, Machiavelli, Butler, Rawis, Nozick, Zizek, Arendt, Baudrillard, 8erlin, and more.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3523 Medieval Philosophy (H)
Description: The central focus is on the philosophical and theological problems that engaged the minds of medieval thinkers from Christian, Islamic, and Jewish traditions, including Abelard, Avicenna, Averroes, Maimonides, Aquinas, Scotus, and Ockham.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3553 Philosophy of Dreams (H)
Description: Through philosophical writings about dream-related topics, this course examines questions related to metaphysics, epistemology, and ethics. This involves a focused look at the deep questions and strange phenomena that dreaming provokes. By the end of the course, students should have an increased understanding of the history of philosophy and dreaming, popular moral theories, and the perplexities surrounding dreaming. At the same time, students will develop the ability to evaluate and think critically about philosophical writings and theories about dreams.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3613 Philosophy of Religion (H)
Description: This course introduces students to the major topics in philosophy of religion, as found in the Western monotheistic tradition. Topics include: the relationship between faith and reason, the problem of evil, arguments for God's existence, theological predication and religious language, religious experience, soteriology, and miracles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3623 Philosophy of Race (DH)
Description: Philosophy of Race investigates race discourse within the texts of contemporary philosophers. The course begins with an examination of the concept of race from antiquity through postmodernity. Course discussion focuses on the biological veracity of race, the rise of race as a sociopolitical concept, and the role of modern philosophers in shaping the prevailing perception of people of non-European descent in the West and the implicit justification of slavery, which pervades their texts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

PHIL 3633 MLK, Jr., Malcolm X, & Philosophy of Race (DH)
Description: Critical examination of African American philosophers and other Black thinkers of the Dlaspora In an effort to understand the philosophical significance of the Black experience. Since Martin Luther King, Jr. and Malcolm X are widely accepted as the apex of the two major strains of Black-American philosophy this course will closely read their works.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

PHIL 3703 Ethics & Animals (H)
Description: This course is intended to introduce students to ethical theories while also applying them to a wide range of moral concerns surrounding animals. The central goal of this course is to help students develop the skills needed to construct philosophical arguments and analyze multiple perspectives related to the ethical treatment of animals. Topics may include: animal welfare, rights, consciousness, food, agricultural industry, captivity, hunting, and companionship.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3713 Philosophy of Education
Description: Classical and contemporary philosophers who have systematically developed their ideas about education, including Plato, Aristotle, Rousseau, Locke, and Dewey.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 3733 Environmental Ethics (H)
Description: This course explores human ethical obligations as they related to the broader natural environment in the light of two issues: contemporary concerns about human-induced changes to the environment (pollution, resource depletion, climate change, etc.), and the question of how distinct ways of conceiving the human relationship to nature impact human behavior and thereby the trajectory of these environmental changes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3743 Science and Human Values (H)
Description: A general introduction to the history of western science, stressing cultural values affecting scientific innovations, as well as the effects of scientific innovations on cultural values. Important examples from the history of astronomy and physics and from the history of evolutionary biology will be examined. Students will critically examine the relationship(s) between scientific work and broader cultural concerns.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3773 Social Media & Philosophy (H)
Description: Students will read and reflect upon some of the most influential theories on social media today. Discussions will include the competing analyses of Bauerlein, Carr, Shirky and many others who debate the influences of modern media on a wide array of topics: social identity, friendship, love, knowledge, communication, individuality, commerce, entertainment, creativity, consumerism, political activism, and democratic ideals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3783 Ethics of Artificial Intelligence (H)
Description: Case-based examination of ethical issues surrounding the development and implementation of artificial intelligence. Topics include ethical learning, responsibility and automated systems, moral machines, explainable artificial intelligence, algorithmic bias, automation and work, human-robot interaction, machine consciousness, the moral status and rights of robots, and super-intelligence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3793 Philosophies of Love & Sex (H)
Description: In this class students are going to engage a variety of theories on sex, love, and gender. Some of these theories emphasize the role of our evolutionary past on how we pursue intimate relationships. On this view, much of our desire for sex and love is influenced by the reproductive choices of our ancestors. Other theories, however, stress the rich diversity of social practices historically and across the world today. Students will therefore be exposed to competing ideas on marriage, sexual preferences, promiscuity, hormonal differences, gender socialization, and so forth.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3803 Ethics, Society, and Business (H)
Description: Ethical issues in business, such as employer-employee duties and loyalties, advertising uses, preferential treatment practices. Analytic grounding in basic theories of ethics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3813 American Philosophy (H)
Description: Dominant trends in American philosophy, with an emphasis on Pragmatism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3823 Engineering Ethics
Description: Philosophical analysis of moral issues in engineering practice, such as whistle blowing, conflicts of interest and product liability. Professional codes of ethics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 3833 Biomedical Ethics (H)
Description: Moral problems surrounding medical practice, biomedical research, and health policy. Students will develop and use moral reasoning skills to navigate complex issues surrounding the provision of healthcare and medical practice. Topics may include physician assisted suicide, genetic engineering, human and animal experimentation, euthanasia, cloning, reproductive rights, etc. A special emphasis will be placed on the impact of health policy and medical decision-making on marginalized persons, communities, and populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3843 Philosophy of Law (H)
Prerequisites: Upper-division standing.
Description: Philosophical issues related to U.S. law and relationship between law and morality, liability, culpability, and enforcement. Questions will be debated, like: What is "the law"? Do we have an obligation to obey the law? What about unjust laws? How should we interpret statutes and constitutions? What is the relationship between law and morality? Is it moral to lock someone in a room if they break the law? Should people be hospitalized instead? Should legislatures pass laws that prohibit us from engaging in behavior that only harms ourselves? What about laws that require us to help others?
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3853 Pragmatism (H)
Description: A survey of Pragmatism and its history. While the course will primarily focus on two major figures of American Pragmatism, Charles Peirce and William James, we will also explore how pragmatism developed in the 21st century and track its influence in both philosophy and science.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3873 Power, Oppression, & Privilege (DH)
Description: This course introduces students to various concepts, insights, and methodological tools within feminist philosophy. Questions to be addressed include: How should we understand feminism? What is intersectionality? How should we understand concepts such as power, privilege, and oppression? How should we think about sex and gender? What is sexism and misogyny and how do they operate in our society? What insights can feminist thinking bring to bear on questions of health care, sport, dating, and sexuality? What does an ethical response to injustice require?
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

PHIL 3883 Gender, Race, and Class in Healthcare (DH)
Description: This course philosophically examines the relationships of individuals and social groups to healthcare research and clinical practice, including the influences of stereotyping, microaggressions, and implicit bias on the healthcare experiences of patients who are members of marginalized groups. This course is suitable for those interested in philosophical issues around medical practice and those who hope to practice medicine with a greater awareness of issues of health injustices.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

PHIL 3890 Advanced Honors Experience in PHIL
Prerequisites: Honors Program participation and concurrent enrollment in a designated PHIL course.
Description: A supplemental Honors experience in philosophy to partner concurrently with designated upper-division PHIL course(s). This course adds a different Intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Honors Credit

PHIL 3913 Existentialism (H)
Prerequisites: Three credit hours of philosophy.
Description: This course explores a range of philosophers and literacy sources, tracing existentialism from antiquity to present day. Students will be challenged to not simply understand these texts, but to engage them in such a way as to practice these texts, but to engage them in such a way as to practice living in and through the ideas of these great thinkers. This course is just as much about discovering the breadth of the existential tradition as it is about realizing the profound freedom, limitlessness, and potential of one's own existence despite moral absurdity, subjective epistemology, and the ever-present specter of death.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 3920 Contemporary Philosophical Problems
Description: Selected contemporary problems and discussions. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 3933 Creation and Evolution
Description: Critical investigates the most prevalent debate between religion and science; namely, Darwinian Evolution vs. (so-called) Scientific Creationism (including Intelligent Design advocates). What is the available scientific evidence? What are the prevailing value differences? What are the legal precedents and prospects? This is the most complete and comprehensive investigation of these issues available on campus.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 3943 Eastern Philosophy (GH)
Description: This course surveys four Eastern philosophies from South and East Asia: Hinduism, Buddhism, Confucianism and Daoism. Using primary sources, we will explore the main themes and practices of these schools of thought, while also demonstrating that each tradition offers unique teachings on the nature of reality, the Divine, and self-identity, while also offering a set of practices designed to help one realize fundamental truths and live better.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

PHIL 4000 Senior Thesis in Philosophy
Prerequisites: PHIL 4990 and consent of instructor.
Description: Guided individual work on a thesis under the direction of a faculty member, with a second faculty reader and oral presentation. Intended for senior standing undergraduate Philosophy majors. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 4003 Mathematical Logic and Computability
Prerequisites: PHIL 3003 or MATH 3613 or consent of instructor.
Description: The basic metatheorems of first order logic: soundness, completeness, compactness, Löwenheim-Skolem theorem, undecidability of first order logic, Gödel's incompleteness theorem. Enumerability, diagonalization, formal systems, standard and nonstandard models, Gödel numberings, Turing machines, recursive functions, and evidence for Church's thesis. Same course as MATH 4003. May not be used for degree credit with PHIL 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 4013 Perspectives on Death and Dying (H)
Description: Issues that arise as individuals confront the fact of mortality. Dying patients, the ethical issues of euthanasia and suicide, the process of grief, death in literature and the arts, and philosophical and religious views on immortality.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 4113 Philosophy & the Arts (H)
Description: Nature of aesthetic objects and experiences; form, meaning and value in the arts; the function of art in society; criteria of criticism of the arts. As such, we will cover a wide diversity of writers including Aristotle, Plato, Kant, Nietzsche, Hegel, do Beauvoir, Adorno, Danto, and many more.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 4313 Philosophy of Mind (H)
Description: What is the 'Mind'? How can a human brain create thoughts, sensations, emotions, and abstract ideas? This class examines the nature of the brain, mind, soul, and self with the tools of philosophy, psychology, psychiatry, neuroscience, and evolutionary biology. Is mental content completely 'in the head' and private? or is it irreducibly tied to external input and publicly accessible? Are inner feelings and consciousness incompatible with physical explanations?
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 4543 Philosophy of Language
Prerequisites: PHIL 1313 or PHIL 3003.
Description: A survey of the development of the philosophy of language, including works of philosophers such as Frege, Wittgenstein, Russell, Strawson, Searle, Donnellan, Grice, and Kripke. May not be used for degree credit with PHIL 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 4553 Contemporary Ethical Theory
Prerequisites: PHIL 3413 or consent of instructor.
Description: Debate in ethical theory since Moore. The naturalistic fallacy, intuitionism, and value realism. May not be used for degree credit with PHIL 4553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 4713 Philosophy of Science (H)
Description: Is there a single 'Scientific Method', or are there a number of methods used in different sciences? Does using this method (or these methods) lead to truth concerning the physical world, or models that allow us to successfully navigate within it? What is the relationship(s) between science and other human activities (including ethics and religion)? This course will critically investigate these issues and others using examples from many disciplines in the history of science as well as current developments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 4723 Philosophy of Psychology (H)
Description: A survey of problems in philosophy of psychology, including the nature of psychology and its relation to natural sciences, the cognitive architecture of our minds, which cognitive capacities are innate and which are developed, the relationship between the brain, body, and external world, how we understand other minds, how language affects thought.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 4733 Philosophy of Biology (H)
Description: There have been many models of 'Darwinian Evolution' since The Origin of Species in 1859. How did each develop and what are the differences among them? How solid is the melding of evolution, genetics, and molecular biology established in the 1970s and 1980s? Do new developments indicate that this synthesis needs to be extended, or replaced with something new?
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

PHIL 4890 Internship in Philosophy
Prerequisites: Consent of instructor.
Description: Directed internship experience in a philosophy-related professional work setting. Students must have an approved internship that will provide philosophy experience beyond that available in the classroom. Students produce written analyses of their work and learning under the guidance of the instructor and internship site supervisor. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 4943 Indian Philosophy
Prerequisites: PHIL 3943 or consent of instructor.
Description: Study of texts and themes in two main traditions of Indian Philosophy: Hinduism and Buddhism. How these schools present the fundamental nature and knowledge of reality, human existence, the divine, and enlightenment. May not be used for degree credit with PHIL 5943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 4953 East Asian Philosophy
Prerequisites: PHIL 3943 or consent of instructor.
Description: Study of texts and themes in the Chinese and Japanese traditions: Confucianism, Daoism and Zen. How these schools present the fundamental nature and knowledge of reality, human existence, community and enlightenment. May not be used for degree credit with PHIL 5953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 4983 Knowledge and Reality
Prerequisites: 12 credit hours of philosophy.
Description: This course surveys topics in epistemology, a branch of philosophy that asks the following types of questions. What can we know? How do we come to know it? What value does knowing have for our lives? We will also survey questions in metaphysics, a branch of philosophy that explores the nature of reality. For example, are properties like redness just as real as things like tables and chairs? What is a person? What does contemporary science say about what the world is made up of? May not be used for degree credit with PHIL 5983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 4990 Special Studies in Philosophy
Description: Selected philosophical topics or works. Offered for variable credit, 1-3 credit hours, maximum of 10 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 4993 Senior Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a faculty member, with second faculty reader and oral examination. Required for graduation with departmental honors in philosophy.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Philosophy
General Education and other Course Attributes: Honors Credit

PHIL 5000 Master's Thesis in Philosophy
Description: Supervised individual work on a thesis for a master's degree. Offered for variable credit, 1-6credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 5003 Symbolic Logic
Description: Propositional logic and predicate logic with identity. Formal analysis of language. May not be used for degree credit with PHIL 3003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5013 Mathematical Logic and Computability
Prerequisites: PHIL 3003 or MATH 3613 or consent of instructor.
Description: The basic metatheorems of first order logic: soundness, completeness, compactness, Löwenheim-Skolem theorem, undecidability of first order logic, Gödel's incompleteness theorem. Enumerability, diagonalization, formal systems, standard and nonstandard models, Gödel numberings, Turing machines, recursive functions, and evidence for Church's thesis. Same course as MATH 4003. May not be used for degree credit with PHIL 4003 or MATH 4003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5100 Report Research
Description: Supervised individual work on a report for a master's degree. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 5210 Seminar on a Major Philosopher
Prerequisites: Three courses in philosophy.
Description: The writings of a major philosopher and related material. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 5303 Topics in Philosophy of Religion
Description: An examination of central topics in the philosophy of religion, such as the existence of God, the problem of evil, divine attributes, miracles, revelation, faith and reason, religious pluralism and exclusivism, and morality.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5310 Seminar on a Field of Philosophy
Description: Three courses in philosophy. Selected topics in one field of philosophy. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 5313 Topics in Social Political Thought
Description: Consideration of a single topic (e.g. justice), topics (e.g. distributive justice and citizenship) of a single philosophical school, or movement (e.g. Marxism) or several movements and schools (e.g. Marxism and liberalism).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5323 Seminar In Ancient Philosophy
Prerequisites: PHIL 3113.
Description: Philosophical problems that characterize ancient Philosophy: form and matter, one and many, universal and particular, actuality and potentiality, stability and change, substance and accidents, first principles and elements. Close reading of Plato and Aristotle.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5333 Seminar In Modern Philosophy
Prerequisites: PHIL 3213 or PHIL 3313.
Description: Examination of the metaphysical and epistemological systems of philosophers over 17th-19th century Europe such as Descartes, Spinoza, Locke, Leibniz, Berkeley, Hume, Kant and Hegel.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5343 Seminar in East and West Comparative Philosophy
Prerequisites: PHIL 3943.
Description: Critical comparison between West European and East Asian traditions of philosophy, such as being and non-being, the nature of truth, self, human being, ethics, human rights, community, and religion.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5353 Seminar in Contemporary Continental Philosophy
Prerequisites: PHIL 3213 or PHIL 3313.
Description: Themes such as presence and absence, intentionality and constitution, meaning and "being," identity and difference, history and consciousness, practice and power, construction and deconstruction. Philosophers such as Merleau, Husserl, Heidegger, Sartre, Derrida, and Faucault.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5363 Topics In Metaphysics
Prerequisites: PHIL 3113 or PHIL 3213 or PHIL 4983.
Description: Selected topics that may be approached from an historical or contemporary standpoint, such as idealism, realism, causation, time, universals, personal identity, possibility and free will.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5373 Contemporary Epistemology
Prerequisites: PHIL 3213 or PHIL 3113 or PHIL 4983.
Description: Recent approaches to the theory of knowledge. Origin and justification of belief and certainty, roles of the senses and the mind, and the nature of truth.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5383 Seminar In American Philosophy
Description: Selected philosophical schools or traditions influential in American thought, such as transcendentalism, pragmatism, or naturalism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5393 German Idealism
Prerequisites: PHIL 3113 or 3213.
Description: Selected major works of post-Kantian German Philosophy, such as the nature of a philosophical system, identity, and self-consciousness.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5423 Topics In Ethical Theory
Prerequisites: PHIL 3413.
Description: Central problems in ethical theory, such as ethical realism/anti-realism, motivational internalism/externalism, and problems within specific normative systems.Written Description.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5433 Topics In Philosophy Of Law
Prerequisites: PHIL 3843.
Description: In-depth examination of selected topics in philosophy of law, such as punishment, jurisprudence, and principles of legislation. Seminar format.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5443 Topics In Biomedical Ethics
Prerequisites: PHIL 3833.
Description: In-depth examination of selected topics in biomedical ethics, such as implications of the Human Genome Project, ethics of human reproduction, and research ethics. Emphasis on contemporary philosophical thought. Seminar format.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5453 Topics in Professional Ethics
Description: In-depth study of ethical issues faced by business and engineering professionals (e.g., social effects of advertising, environmental impact of professional practice, product safety and consumer protection, whistleblowing and confidentiality).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5510 Research Topics in Philosophy
Prerequisites: Consent of graduate adviser or department head.
Description: Individual research on topics related to the student's interests and/or thesis topic(s). Offered for variable credit, X=1-3 credit hours, maximum of 10 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 5543 Philosophy Of Language
Prerequisites: PHIL 5003 or consent of instructor.
Description: A survey of the development of the philosophy of language, including works of philosophers such as Frege, Wittgenstein, Russell, Strawson, Searle, Donnellan, Grice, and Kripke. May not be used for degree credit with PHIL 4543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5553 Contemporary Ethical Theory
Prerequisites: PHIL 3413 or consent of instructor.
Description: Debate in ethical theory since Moore. The naturalistic fallacy, intuitionism, and value realism. May not be used for degree credit with PHIL 4553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5610 Philosophical Issues in Education
Description: Contemporary issues in educational theory and practice. The relation of education to political thought, religion, public law and culture. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 5910 Research Problems in Philosophy
Prerequisites: Consent of instructor and department head.
Description: Individual or group research on specific philosophical problems. Offered for variable credit, 1-3 credit hours, maximum of 10 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Philosophy

PHIL 5943 Indian Philosophy
Prerequisites: PHIL 3943 or consent of instructor.
Description: Study of texts and themes in two main traditions of Indian Philosophy: Hinduism and Buddhism. How these schools present the fundamental nature and knowledge of reality, human existence, the divine, and enlightenment. May not be used for degree credit with PHIL 4943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5953 East Asian Philosophy
Prerequisites: PHIL 3943 or consent of instructor.
Description: Study of texts and themes in the Chinese and Japanese traditions: Confucianism, Daoism and Zen. How these schools present the fundamental nature and knowledge of reality, human existence, community and enlightenment. May not be used for degree credit with PHIL 4953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

PHIL 5983 Knowledge and Reality
Prerequisites: 12 credit hours of philosophy.
Description: This course surveys topics in epistemology, a branch of philosophy that asks the following types of questions. What can we know? How do we come to know it? What value does knowing have for our lives? We will also survey questions in metaphysics, a branch of philosophy that explores the nature of reality. For example, are properties like redness just as real as things like tables and chairs? What is a person? What does contemporary science say about what the world is made up of? May not be used for degree credit with PHIL 4983.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Philosophy

Physician Assistant (PA)

PA 5010 Special Topics
Description: This course is used to ensure students enrolled in the PA program have comprehensive retention from successfully completed coursework. Offered for variable credit, 1-5 credit hours, maximum of 5 credit hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5011 Introduction to Pharmacology
Prerequisites: Acceptance into the PA program.
Description: General principles of pharmacokinetics and pharmacodynamics of drugs used to treat human disease. May not be used for degree credit with BIOM 6771.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5015 Human Anatomy
Prerequisites: Acceptance into the PA program.
Description: This course presents gross structure of the human body using a regional approach. Topics include topographic and functional anatomy, and clinical correlations as appropriate for graduate students in their intended specified program. The course provides the descriptive basis for understanding human structure and function encountered in succeeding courses and professional practice. May not be used for degree credit with BIOM 5122.
Credit hours: 5
Contact hours: Lecture: 3 Lab: 4 Contact: 7
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health
Additional Fees: PA Course Anatomy fee of $125 applies.

PA 5021 Fundamentals of Medical Imaging
Prerequisites: Acceptance into the Physician Assistant program.
Description: To introduce the student to the fundamental principles, equipment and common methods and procedures of radiography. May not be used for degree credit with MAT 5412.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5031 Introduction to Microbiology and Immunology
Prerequisites: Acceptance into the PA program.
Description: Infectious agents, including viruses, bacteria, fungi and parasites, their structure, genetics and mechanisms of pathogenesis in human disease. May not be used for degree credit with BIOM 6791.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5041 Laboratory Medicine
Prerequisites: Acceptance into the PA program.
Description: Laboratory Medicine for the PA is designed to provide students with a background in various laboratory tests used to help in differentiating disease processes and confirming diagnoses. It is intended to be introductive and generalized concepts in the use and interpretation of laboratory tests with the understanding that more in-depth discussion will be continued in the individual systems courses.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5112 Developing the Physician Assistant I
Prerequisites: Acceptance into the PA program.
Description: Developing the Physician Assistant is an ongoing course that extends throughout the physician assistant program curriculum. The course is designed to develop in PA students the skills and motivation necessary to become successful, compassionate, and competent physician assistant and life-long learners. Developing the Physician Assistant is intended to serve as a bridge between the classroom activities of the didactic year and the clinical rotations.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5113 Respiratory System
Prerequisites: Acceptance into the PA program.
Description: Provides integrated biomedical study of the human respiratory system. May not be used for degree credit with BIOM 6870.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5114 Applied Clinical Medicine I
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health
Additional Fees: PA Applied Clinical Med fee of $125 applies.

PA 5121 Rural and Underserved Populations
Prerequisites: Admission into the Physician Assistant Program.
Description: This course will educate students on the unique factors of providing healthcare in rural and underserved communities.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5124 Cardiovascular System
Prerequisites: Acceptance into the PA program.
Description: Provides integrated biomedical study of the human cardiovascular system. May not be used for degree credit with BIOM 6810.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5125 Nervous System
Credit hours: 5
Contact hours: Lecture: 5 Contact: 5
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5132 Hematology System
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5134 Applied Clinical Medicine II
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health

PA 5144 Genitourinary System
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5163 Developing the Physician Assistant II
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5223 Gastrointestinal System
Prerequisites: Acceptance into the PA program.
Description: Provides integrated biomedical study of the human gastrointestinal and hepatic systems. May not be used for degree credit with BIOM 6820.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5233 Psychiatry System
Prerequisites: Admission into the PA program.
Description: Provides clinical presentation, differential diagnosis, etiology (including pathophysiological etiologies), basic pharmacology of medications used to treat the disorder, clinical pharmacology, and psychosocial treatments. May not be used for degree credit with BIOM 6880.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5242 Developing the Physician Assistant III
Prerequisites: Acceptance into the Physician Assistant Program, PA 5112 Developing the Physician Assistant I, PA 5222 Developing the Physician Assistant II.
Description: Developing the Physician Assistant is an ongoing course that extends throughout the physician assistant program curriculum. The course is designed to develop in PA students the skills and motivation necessary to become successful, compassionate, and competent physician assistant and life-long learners. Developing the Physician Assistant is intended to serve as a bridge between the classroom activities of the didactic year and the clinical rotations.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5243 Endocrine System
Prerequisites: Acceptance into the PA Program.
Description: The Endocrine System Course is designed to integrate biomedical and clinical knowledge to provide the student with the background to address basic and clinical aspects of the endocrine system. The course will include the physiology, anatomy, and pathology of the endocrine system, as well as common medical conditions that present to the primary care and/or emergency settings, and the behavioral, pharmacological, or surgical treatments that correct or manage such conditions. Same course as BIOM 6900.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5253 Reproductive System
Prerequisites: Acceptance into the Physician Assistant Program.
Description: Provides integrated biomedical study of the male and female human reproductive systems and reproductive biology. May not be used for degree credit with BIOM 6860.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5263 Musculoskeletal/Integumentary System
Prerequisites: Acceptance into the PA Program.
Description: Provides integrated biomedical study of the human musculoskeletal system and associated disorders. May not be used for degree credit with BIOM 6840.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5273 Applied Clinical Medicine III
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Allied Health

PA 5301 Research Methods for Evidence-Based Medicine
Prerequisites: Acceptance into the PA Program.
Description: This course is designed to provide the basic understanding for why, how, and what research is conducted for evidence-based medicine. It assists in decision-making in medical practice and improves problem-solving skills.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5302 Developing the Physician Assistant IV
Prerequisites: Acceptance into the Physician Assistant Program; PA 5112 Completion of Developing the Physician Assistant I, PA 5222 Completion of Developing the Physician Assistant II, PA 5242 Completion of Developing the Physician Assistant III.
Description: Developing the Physician Assistant is an ongoing course that extends throughout the physician assistant program curriculum. The course is designed to develop in PA students the skills and motivation necessary to become successful, compassionate, and competent physician assistant and life-long learners. Developing the Physician Assistant is intended to serve as a bridge between the classroom activities of the didactic year and the clinical rotations.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5404 Family Medicine I
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: Students are required to have clinical training in family medicine. During this rotation, students extend their knowledge of clinical medicine and develop procedural skills. They participate in direct patient care and learn what it takes to be a primary care provider.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5414 Family Medicine II
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: Students are required to have clinical training in family medicine. During this rotation, students extend their knowledge of clinical medicine and develop procedural skills. They participate in direct patient care and learn what it takes to be a primary care provider.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5424 Internal Medicine I
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: Students are required to have clinical training in internal medicine. During this rotation, students extend their knowledge of clinical medicine and develop procedural skills. They participate in direct patient care in the outpatient and inpatient settings. They gain experience in what it takes to be a primary care provider.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5434 Internal Medicine II
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: Students are required to have clinical training in internal medicine. During this rotation, students extend their knowledge of clinical medicine and develop procedural skills. They participate in direct patient care in the outpatient and inpatient settings. They gain experience in what it takes to be a primary care provider.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5444 Emergency Medicine I
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: Emergency Medicine Rotation is required as part of the clinical training. During this rotation, students extend their knowledge of clinical medicine and develop procedural skills. They advance their base of knowledge in pursuit of answers to questions that arise during patient care through assigned readings and interactions with the medical staff. Skill development occurs as students are involved in direct patient care in the emergency room.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5454 Emergency Medicine II
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: Emergency Medicine Rotation is required as part of the clinical training. During this rotation, students extend their knowledge of clinical medicine and develop procedural skills. They advance their base of knowledge in pursuit of answers to questions that arise during patient care through assigned readings and interactions with the medical staff. Skill development occurs as students are involved in direct patient care in the emergency room.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5464 Obstetrics & Gynecology
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: An OB/GYN Rotation is required as part of the clinical training. During this rotation, students extend their knowledge of clinical medicine and develops procedural skills. They advance their base of knowledge in pursuit of answers to questions that arise during patient care through assigned readings and interactions with the medical staff. Skill development occurs as students apply knowledge from pre-clinical coursework to those clinical problems encountered while performing clerkship duties.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5474 Pediatrics
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: A Pediatric Rotation is required as part of the clinical training. During this rotation, students extend their knowledge of clinical medicine and develop procedural skills. They advance their base of knowledge in pursuit of answers to questions that arise during patient care through assigned readings and interactions with the medical staff. Skill development occurs as students apply knowledge from pre-clinical coursework to those clinical problems encountered while performing clerkship duties.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5484 Psychiatry
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: A Psychiatric Rotation is required as part of the clinical training. During this rotation, students extend their knowledge of clinical medicine and develop procedural skills. They advance their base of knowledge in pursuit of answers to questions that arise during patient care through assigned readings and interactions with the medical staff. Skill development occurs as students apply knowledge from pre-clinical coursework to those clinical problems encountered while performing clerkship duties.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5494 Surgery
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: A Surgery Rotation is required as part of the clinical training. During this rotation, students extend their knowledge of clinical medicine and develop procedural skills. They advance their base of knowledge in pursuit of answers to questions that arise during patient care through assigned readings and interactions with the medical staff. Skill development occurs as students are directly involved in surgery cases.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5504 Medicine Elective I
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: This rotation will consist of a 4-week block, during which the student, under supervision of a clinician serving as a preceptor, expands their knowledge of clinical medicine and develops procedural skills.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5514 Medicine Elective II
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: This rotation will consist of a 4-week block, during which the student, under supervision of a clinician serving as a preceptor, expands their knowledge of clinical medicine and develops procedural skills.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5524 Medicine Elective III
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: This rotalion will consist of a 4-week block, during which the student, under supervision of a clinician serving as a preceptor, expands their knowledge of clinical medicine and develops procedural skills.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5534 Surgery Elective
Prerequisites: Admission into the Physician Assistant Program; completion of the Didactic portion of the PA curriculum.
Description: This rotation is an elective in a surgical subspecialty of the student's choice. This clinical rotation provides hands-on experience in the clinic, hospital, and surgical suite. It will allow a student to advance their base of knowledge in surgical subspecialties through direct patient care. Skill development occurs as students apply knowledge from pre-clinical coursework to those clinical problems encountered while performing clinical duties.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

PA 5544 Medicine Selective
Prerequisites: Acceptance into the PA Program.
Description: This rotation is selected for the student to enhance specific learning opportunities. This clinical rotation provides hands-on experience In the clinic, hospital, and surgical suite. It will allow a student to advance their base of knowledge in surgical subspecialties through direct patient care. Skill development occurs as students apply knowledge from pre-clinical coursework to those clinical problems encountered while performing clinical duties.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Graduate
Schedule types: Lecture
Department/School: Allied Health

PA 5554 Professional Enrichment
Prerequisites: Acceptance into the PA Program.
Description: This course is designed to enhance the professionalism of individual students according to their interest, This course offers the students the ability to serve as a research assistant In an ongoing project at CHS or serves as a preceptorship to provide a structured, supportive bridge when transitioning from a student to a practicing PA.
Credit hours: 4
Contact hours: Contact: 4 Other: 4
Levels: Graduate
Schedule types: Independent Study
Department/School: Allied Health

Physics (PHYS)

PHYS 1001 Frontiers of Physics
Prerequisites: Freshmen and sophomore Physics Majors only or consent of instructor.
Description: Student and faculty discussions of current research topics in physics. Includes laboratory tours and research presentation by faculty. Graded on pass-fail basis.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 1014 Descriptive Physics (N)
Description: A survey course presenting the basic concepts and principles of physics with a minimum of mathematics. Motion, waves, temperature, electricity, magnetism, optics, atomic structure, and nuclear energy.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics
General Education and other Course Attributes: Natural Science Reasoning

PHYS 1114 College Physics I (LN)
Prerequisites: Minimum grade of "C" in MATH 1513 or higher.
Description: Algebra-based introductory course covering physics appropriate for applied and life sciences or pre-professional majors. Topics covered - Newtonian mechanics, fluids, thermodynamics, waves, and sound.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 2 Contact: 5 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Lecture, Combined lecture lab & disc
Department/School: Physics
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

PHYS 1214 College Physics II (LN)
Prerequisites: PHYS 1114 or PHYS 2014 with a “C” or better or acceptable AP credit.
Description: A continuation of College Physics I for students in the applied-sciences, life-sciences, and pre-professional majors. Covers electricity, magnetism, optics, quantum physics, atomic and nuclear structure.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 2 Contact: 5 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Lecture, Combined lecture lab & disc
Department/School: Physics
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

PHYS 2014 University Physics I (LN)
Prerequisites: Minimum grade of "C" in MATH 2103 or MATH 2123 or MATH 2144 or acceptable AP credit.
Description: Calculus-based introductory course that covers mechanics with topics such as linear motion, rotation, oscillation, velocity, acceleration, force, torque, momentum, angular momentum, work, kinetic energy, potential energy, and gravity. Intended for physical science, math and engineering majors.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 2 Contact: 5 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Lecture, Combined lecture lab & disc
Department/School: Physics
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

PHYS 2020 Special Topics in Physics (L)
Description: Laboratory exercises for College Physics I, College Physics II, University Physics I or University Physics II. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lab: 2-6 Contact: 2-6
Levels: Undergraduate
Schedule types: Lab
Department/School: Physics
General Education and other Course Attributes: Laboratory-Based Inquiry

PHYS 2114 University Physics II (LN)
Prerequisites: PHYS 2014 with a “C” or better or acceptable AP credit.
Description: A continuation of University Physics I covering electricity, magnetism, and optics for physical sciences, math, and engineering majors.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 2 Contact: 5 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Lab, Lecture, Combined lecture lab & disc
Department/School: Physics
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

PHYS 2203 University Physics III
Prerequisites: PHYS 2114 with a grade of “C” or better or acceptable AP credit.
Description: A continuation of PHYS 2114 for all Physics majors. Topics include: heat, special relativity, and atomic and nuclear physics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 2663 Physics in Medicine (N)
Description: Course will introduce important technologies widely used in modern medicine and the basic physics and physiology that underlies them. Examples include EKG machines, ultrasound imaging, laser surgery, x-ray, CT, PET, and MRI. Field trips required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics
General Education and other Course Attributes: Natural Science Reasoning

PHYS 2890 Honors Experience in Physics
Prerequisites: Honors Program participation and concurrent enrollment in designated course(s).
Description: A supplemental Honors experience in Physics to partner concurrently with designated lower division PHYS course(s). This course adds a different intellectual dimension to designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics
General Education and other Course Attributes: Honors Credit

PHYS 3013 Mechanics I
Prerequisites: PHYS 2114 or equivalent, and MATH 2233 or concurrent enrollment.
Description: Mechanics of particles, systems of particles and rigid bodies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 3113 Thermal Physics
Prerequisites: PHYS 2203 and MATH 2163 or concurrent enrollment.
Description: Thermometry, heat transfer, elementary theory of specific heat and the three laws of thermodynamics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 3213 Optics
Prerequisites: PHYS 2114 and PHYS 3513, or consent of the instructor.
Description: Geometrical optics; interference, diffraction, dispersion, absorption, and polarization of light.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 3313 Introduction to Semiconductor Device Physics
Prerequisites: PHYS 2114 or equivalent.
Description: An introduction to crystal structure, the quantum theory of solids, the physics of semiconductor materials and the pn junction, with an emphasis on applications to semiconductor devices. Same course as ECEN 3903.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 3323 Modern Laboratory Methods I
Prerequisites: PHYS 2014, PHYS 2114.
Description: Introduction to electric and electronic measurements and computer applications in experimental control, data collection and laboratory computation. Experiments on test instruments, integrated electronics, signal processing, computer interfacing, and data acquisition. Previously offered as PHYS 3322.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Physics

PHYS 3513 Mathematical Physics
Prerequisites: PHYS 2114 and MATH 2163.
Description: Physical applications of vectors, vector calculus and differential equations. Fourier analysis. Orbit geometry, coordinate systems and transformation of coordinates. Matrices and determinants.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 3553 Foundations of Cancer
Prerequisites: Minimum grade of "C" in CHEM 1225 or CHEM 1414 or CHEM 1515.
Description: Course covers six themes: causes of cancer, cancer genetics, cancer diagnosis, cancer treatment, immuno-oncology, and cancer prevention. Course will illustrate both setbacks and victories in applying the scientific method to biological processes and the evidence for and assumptions made in these approaches will be discussed. Designed for future: medical doctors, cancer researchers, medical engineers, and to cancer patients or relatives. Same course as MICR 3553. May not be used for degree credit with PHYS 5553 and MICR 5553.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Undergraduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Physics

PHYS 3623 Modern Laboratory Methods II
Prerequisites: PHYS 2014, PHYS 2114.
Description: Introduction to the operating principles and applications of modern physical methods used in research. Laboratory experiments with lasers, wave propagation, thermometry, radiation detection, optical interferometry, and spectroscopy.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Physics

PHYS 3713 Fundamentals of Modern Physics
Prerequisites: PHYS 2203 with minimum grade of “C”.
Description: The topics covered in the course include introduction to basic concepts in atomic physics, statistical mechanics, molecular physics, solid state physics, nuclear physics, and elementary particles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4003 Computer Simulation Methods in Physics
Prerequisites: PHYS 3013, PHYS 3113, PHYS 3313 or consent of instructor.
Description: Introduction to computer simulation methods used in the physical sciences. Linear systems, nonlinear systems, molecular dynamics, Monte Carlo methods, cellular automata, simple quantum systems. Some knowledge of either C, FORTRAN, Pascal, or BASIC required. Previously offered as PHYS 3993.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4010 Special Problems
Prerequisites: Consent of instructor.
Description: Individual laboratory work of an advanced nature. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Physics

PHYS 4113 Electricity and Magnetism
Prerequisites: PHYS 2114 and MATH 2233, or their equivalents.
Description: Electrostatic fields, magnetic fields of steady currents, induced EMFs, Maxwell's equations and introduction to electromagnetic wave theory. Vector analysis used.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4213 Introduction to Nuclear and Particle Physics
Prerequisites: PHYS 2114 and PHYS 3713 or consent of instructor.
Description: Survey of phenomenological aspects of nuclear and particle physics, photon and charged particle interactions with matter, particle detectors, particle accelerators, electromagnetic, strong and weak interactions, models of the nucleus, quark model of mesons and baryons, elementary particles, and symmetries in the Standard Model.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4223 Introduction to General Relativity
Prerequisites: Minimum grade of "C" in both PHYS 2203 and PHYS 3513 or consent of instructor.
Description: An introduction to Einstein's theory of relativity, including the metric description of spacetime, relativistic kinematics in flat spacetime, coordinate transformations, gravity as curved spacetime, and black holes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4263 Introduction to Solid State Physics
Prerequisites: PHYS 3013, PHYS 3713 or consent of instructor.
Description: Structure, specific heat, dielectric properties, lattice vibrations, free electron theory, band structure, and superconductivity of solids.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4313 Molecular Biophysics
Prerequisites: PHYS 1214 or PHYS 2114.
Description: Survey of experimental and computational methods for determining the structure and function of biomolecular assemblies such as proteins and membranes. Techniques to be discussed include: X-ray diffraction, nuclear and electron spin resonance, optical spectroscopy, photobiophysics, kinetic modeling, molecular dynamics, Monte Carlo and homology modeling.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4413 Modern Physics II
Prerequisites: PHYS 3013 and PHYS 3713.
Description: Atomic and X-ray spectra; one-dimensional Schroedinger equation; nuclear structure; introduction to statistical mechanics and elementary quantum statistics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4423 Mechanics II
Prerequisites: PHYS 3013.
Description: Lagrangian and Hamiltonian dynamics, calculus of variations, constrained systems, coupled oscillators, continuous systems and waves.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4503 Quantum Information
Prerequisites: PHYS 3713 Modern Physics.
Description: Quantum information is rapidly becoming one of the most important multidisciplinary fields in physics research. This class will focus on building an understanding of the core concepts behind this emerging area and why it is expected to revolutionize technology in the following decades. Topics will include measurements in quantum mechanics, the EPR paradox, classical and quantum information/computers, and quantum cryptography. May not be used for degree credit with PHYS 5503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4513 Introductory Quantum Mechanics
Prerequisites: PHYS 3713.
Description: Uncertainty principle, setting up Schroedinger equation (time dependent as well as time independent) and solving it for linear oscillator, hydrogen atom, periodic, and other potentials.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4663 Radioactivity and Nuclear Physics
Prerequisites: PHYS 3713 or consent of instructor.
Description: Natural and artificial radioactivity, decay laws; absorption, detection and measurement of radiations; nuclear transformations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4712 Senior Project
Description: Advanced individual experimental projects. Project proposal, formal laboratory report, and oral presentation are required.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Physics

PHYS 4813 Electromagnetic Radiation
Prerequisites: PHYS 4113 with minimum grade of "C."
Description: Electromagnetic wave theory, reflection and refraction of electromagnetic waves; resonant cavities, wave guides, fiber propagation of electromagnetic waves; radiation sources; relativistic description of electromagnetic fields.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics

PHYS 4993 Senior Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a faculty member, with second faculty reader and oral examination. Required for graduation with departmental honors in physics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Physics
General Education and other Course Attributes: Honors Credit

PHYS 5000 Master's Thesis Research or Report
Prerequisites: Consent of major professor.
Description: Thesis research or report for master's degree. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Physics

PHYS 5110 Seminar
Prerequisites: Graduate standing in physics.
Description: Special topics in physics. Offered for variable credit, 1-5 credit hours, maximum of 20 credit hours.
Credit hours: 1-5
Contact hours: Contact: 1-5 Other: 1-5
Levels: Graduate
Schedule types: Independent Study
Department/School: Physics

PHYS 5113 Statistical Thermodynamics and Kinetic Theory
Prerequisites: PHYS 3113.
Description: Fundamental concepts of thermodynamics: first, second and third laws; thermodynamic potentials. Statistical physics: Maxwell-Boltzman, Fermi-Dirac, Bose-Einstein distribution functions. Kinetic theory: transport phenomena, Boltzman H Theorem, the approach to thermodynamic equilibrium.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5123 Geometrical Optics
Prerequisites: PHYS 3213 or consent of instructor.
Description: Foundations of geometrical optics, geometrical theory of optical imaging, geometrical theory of aberrations, image forming instruments. Same course as ECEN 5803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5133 Laser Spectroscopy
Prerequisites: PHYS 5163.
Description: Principles of different types of laser spectroscopy based on fluorescence, absorption, saturated absorption, absorption in a cavity: Infrared, Raman, light scattering, four wave mixing, CARS, phase conjugation, two photon absorption, double resonance, and multiphoton ionization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5163 Lasers
Prerequisites: PHYS 4813 or equivalent.
Description: Semi-classical description of absorption and emission of light by matter; effects of cavities and optical elements; theory of lasers' gas, liquid, solid state and semiconductor. Electro-optics. Techniques of mode-locking, Q-switching, phase conjugation, Fourier transform optics. An introduction to non-linear optics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5213 Statistical Mechanics
Prerequisites: PHYS 5113 and PHYS 5613 or consent of instructor.
Description: Classical and quantum mechanical distribution functions for independent particles; interacting classical and quantum systems, superfluidity, phase transitions and critical phenomena, approximation methods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5220 Physics Topics for Teachers
Prerequisites: Teaching experience or consent of instructor.
Description: Special topics for elementary and secondary science teachers to improve their subject matter competence. Content varies, depending on the needs of specific groups of teachers. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Physics

PHYS 5263 Particle Physics
Prerequisites: PHYS 5613 or consent of instructor.
Description: Phenomenology of elementary particles: quark model, electromagnetic, weak, and strong interactions of quarks, leptons, and gauge bosons, Feynman diagram techniques, parton model, gauge symmetries, spontaneous symmetry breaking, Standard model, experimental tests.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5303 Physical Optics
Prerequisites: PHYS 3213 or consent of instructor.
Description: Multiple beam interference, diffractions, imaging, near field optical probes of matter, surface plasmons, light scattering from random media, optical coherence tomography - biomedical applications, negative materials, perfect lenses and super resolution. Same course as ECEN 5823.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5313 Electromagnetic Theory
Prerequisites: PHYS 5453.
Description: Electric and magnetic fields in free space and in matter. Boundary value problems, Green's functions, stress tensors, multipole expansions, thermodynamics; electromagnetic waves.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5350 Special Problems
Prerequisites: Graduate standing in physics.
Description: Special problems of experimental or theoretical nature. Largely individual work with written report required. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Physics

PHYS 5413 Classical Mechanics
Prerequisites: PHYS 4423 or consent of instructor.
Description: Generalized coordinates and advanced dynamics; coupled systems, wave motion; theory of elasticity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5453 Mathematical Methods for Physicists
Prerequisites: PHYS 3513.
Description: Introduction to mathematical techniques used in analyzing problems in physics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5503 Frontiers of Quantum Information Science
Description: Quantum information science envelops a broad spectrum of fields including physics, computer science, mathematics, and electrical engineering. This course will explain important milestones achieved in quantum information science and discuss frontier research on building a real-world quantum computer in suitable physical systems, such as superconducting qubits, topological qubits, trapped ions, neutral atoms, and nitrogen vacancy centers. No credit for students with credit in PHYS 4503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5523 Radiation Detection and Measurement
Prerequisites: PHYS 3713 and PHYS 4213.
Description: Overview of radiation detection and measurement. Instrumentation, statistics of radiation measurements, review of atomic and nuclear physics, review of radiation interaction with matter, nuclear electronics, gas-filled and scintillation detectors, semiconductor detectors, radiation counting and spectroscopy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5533 Dosimetry and Radiation Protection
Prerequisites: PHYS 4663 and PHYS 5523 or consent of instructor.
Description: Radiation dosimetry quantities, effects of ionizing radiation on the human body, basic radiation protection concepts, x-ray and y-ray interaction and attenuation with matter, charged particle and neutron interaction with matter, charged particle equilibria, Bragg-Gray Cavity theory, quantifying dose from radionuclide sources, survey of dosimetric instrumentation, dosimetry with ionization chambers, integrating dosimeters and personal dosimetry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5553 Foundations of Cancer
Prerequisites: Minimum grade of "C" in (or equivalent) or MICR 3033 (or equivalent) or consent of instructor.
Description: Course covers six themes: causes of cancer, cancer genetics, cancer diagnosis, cancer treatment, immuno-oncology, and cancer prevention. Course will illustrate both setbacks and victories in applying the scientific method to biological processes and the evidence for and assumptions made in these approaches will be discussed. Designed for future: medical doctors, cancer researchers, medical engineers, and to cancer patients or relatives. Same course as MICR 5553. May not be used for degree credit with PHYS 3553 or MICR 5553.
Credit hours: 3
Contact hours: Lecture: 2 Contact: 3 Other: 1
Levels: Graduate
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Physics

PHYS 5563 Radioactivity and Nuclear Physics Laboratory
Prerequisites: PHYS 4663 and PHYS 5523 or consent of instructor.
Description: The primary objective of this course is to provide students with hands-on experience in a range of experimental techniques and with a variety of instrumentation routinely used in radiation detection and dosimetry, nuclear and particle physics, and in radiotherapy and medical imaging. The course content can be thought of as being of two types: 1) general experimental methods in physics and 2) methods of radiation detection and measurement.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Physics

PHYS 5573 Radiation Biophysics
Prerequisites: PHYS 5533 or consent of instructor.
Description: Introduction to radiation biophysics, structure of DNA and its relationship to carcinogenesis, stochastic nature or radiation interaction with matter, radiation chemistry, cell survival curves, radiation damage models, DNA damage response.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5593 Physics of Radiation Therapy
Prerequisites: PHYS 5533 or consent of instructor.
Description: Overview of radiation therapy, dosimetry in radiation therapy, megavoltage x-ray and electron therapy, manual treatment planning, computer-based treatment planning, brachytherapy, proton therapy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5613 Quantum Mechanics I
Prerequisites: PHYS 5453.
Description: Postulates of quantum mechanics. Operators, commutation relations, eigenfunctions. Schroedinger, Heisenberg and interaction formalisms, angular momentum and central field problems; nondegenerate perturbation theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5663 Solid State Physics I
Prerequisites: PHYS 4513.
Description: Crystal structure, cohesive energy of ionic crystals and metals, specific heats, free electron theory of metals, band theory, Brillouin zones, insulators and alloys; magnetic properties, optical properties and thermal and electrical conductivity of solids.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5713 Solid State Physics II
Prerequisites: PHYS 5663 or equivalent.
Description: Symmetry, dielectric properties, ferroelectrics, magnetic properties, mechanical properties, and defects of solids.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5813 General Relativity
Prerequisites: PHYS 5453 or consent of instructor.
Description: Theory and applications of general relativity: the principle of equivalence, general coordinate invariance, tensors, affine connections, Einstein's field equations, classic tests, application to stellar dynamics, black holes, and cosmology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 5960 Problems in Chemical Physics
Prerequisites: Consent of instructor.
Description: Intermolecular forces, interaction of radiation with matter in bulk form, dielectric properties of matter, polymer physics and quantum theory of biopolymers. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Physics

PHYS 6000 Doctoral Dissertation Research
Prerequisites: Admission to candidacy and permission of major professor.
Description: Offered for variable credit, 1-15 credit hours, maximum of 60 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Independent Study
Department/School: Physics

PHYS 6010 Advanced Graduate Seminar
Prerequisites: Consent of instructor.
Description: Special topics of an advanced nature in physics. Offered for variable credit, 1-3 credit hours, maximum of 15 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Physics

PHYS 6113 Advanced Theory of Solids
Prerequisites: PHYS 5663.
Description: Many-body techniques, transport processes, band theoretical techniques, superconductivity, dynamics of electrons in a magnetic field, and alloys.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6213 Group Theory for Physics
Prerequisites: PHYS 5453.
Description: Group theory and imperfections in crystals. Dislocation theory and color centers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6243 Semiconductors I
Prerequisites: PHYS 5113, PHYS 5613, PHYS 5663.
Description: The first part of a survey of the physics of semi-conductors. Bonding and structure, crystal growth, epitaxial growth, band theory, phonons, photons, defects, intrinsic and extrinsic statistics, trapping and recombination.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6260 Special Topics in High Energy Physics
Prerequisites: PHYS 5263 or consent of instructor.
Description: Advanced topics of current interest in high-energy physics: collider physics, supersymmetry, unification, flavor physics, string phenomenology, extra dimensions. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Physics

PHYS 6313 Quantum Mechanics II
Prerequisites: PHYS 5613.
Description: Scattering theory, many-particle quantum mechanics and application to atomic and molecular systems; degenerate and time-dependent perturbation theory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6323 Quantum Field Theory
Prerequisites: PHYS 6313 or consent of instructor.
Description: Relativistic Quantum Mechanics: Klein-Gordon field, path integral formulation of Quantum Mechanics, Feynman diagrams, Quantum Electrodynamics, relativistic scattering radiative corrections, renormalization and critical exponents, non-Abelian gauge theories, spontaneous symmetry breaking.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6343 Semiconductors II
Prerequisites: PHYS 6243.
Description: The second part of the semiconductors sequence. Transport phenomena, junctions, devices, heterostructures, and optical properties.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6413 Nonlinear Optics
Prerequisites: PHYS 5163, PHYS 5313, and PHYS 5613.
Description: The response of matter at high radiation powers; nonlinear susceptibilities. Wave propagation in nonlinear medium; three wave and four wave interactions; saturated absorption, optical switching and limiting; two photon and stimulated Raman processes; Self focusing; solitons.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6423 Quantum Optics
Prerequisites: PHYS 5163, PHYS 5613 or consent of instructor.
Description: Quantization of Electromagnetic Fields, coherence, quantum entanglement, parametric down conversion, two photon interferometry, Bell's inequalities, quantum teleportation and cryptography, cavity QED.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6513 Advanced Topics in Solid State Physics
Prerequisites: PHYS 5663 or equivalent.
Description: Interaction of radiation and matter, neutron scattering, phase transitions, magnetic resonance and cooperative phenomena.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6613 Advanced Nuclear and Particle Physics
Prerequisites: PHYS 5263, PHYS 6313; or consent of instructor.
Description: Renormalization of quantum field theories, spontaneous symmetry breaking, Standard model, flavor physics, grand unification, super-symmetry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6713 Advanced Electromagnetic Radiation
Prerequisites: Consent of instructor.
Description: Radiation theory, wave guides, scattering and dispersion relations; relativity.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6803 Photonics I: Advanced Optics
Prerequisites: ECEN 3213 or ECEN 3813.
Description: Advanced optics including spectral and time characteristics of detectors, characteristics of lasers, time, spectral and spatial parameters of laser emission, interferometric techniques, and nonlinear effects such as two-photon absorption and second and third harmonic generations. Ultrashort laser pulses. Same course as CHEM 6803 & ECEN 6803. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Physics

PHYS 6810 Photonics II: THz Photonics and THz-TDS
Prerequisites: PHYS 6803.
Description: THz photonics and THz time-domain spectroscopy (THz-TDS). Concepts and techniques of driving electronic circuitry with ultrashort laser pulses to generate and detect freely propagating pulses of THz electromagnetic radiation using several operational research systems. Same course as CHEM 6810 & ECEN 6810. Previously offered as PHYS 6811. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Physics

PHYS 6820 Photonics II: Spectroscopy II
Prerequisites: PHYS 6803.
Description: Operating principles and applications of laser spectroscopy of atoms, molecules, solids and complex fluids. Absorption, emission, photon correlation, coherence, time resolved Fourier transform. Raman spectroscopy and non-linear optical. Same course as CHEM 6820 & ECEN 6820. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Physics

PHYS 6830 Photonics II: Spectroscopy III
Prerequisites: PHYS 6803.
Description: Advanced spectroscopic instruments and methods used for investigation of semi-conductors and solid state material. Stimulated emission characterized both in wavelength and in time. Time-resolved fluorescence measurements. Multiphotonic excitations. Fast measuring techniques including subnanosecond detectors, picosecond streak cameras, and ultrafast four-wave mixing and correlation techniques. Time-dependent photoconductivity measurements. Same course as CHEM 6830 & ECEN 6830. Previously offered as PHYS 6831. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Physics

PHYS 6840 Photonics III: Microscopy I
Prerequisites: CHEM 3553 or consent of instructor.
Description: The structure and imaging of solid surfaces. Basics of scanning probe microscopy (SPM). Contact and noncontact atomic force microscopy (AFM). Scanning tunneling microscopy (STM) in air. Same course as CHEM 6840 & ECEN 6840. Previously offered as PHYS 6841. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Physics

PHYS 6850 Photonics III: Microscopy II
Prerequisites: PHYS 3553 or consent of instructor.
Description: Advanced techniques of scanning probe microscopy (SPM). Magnetic force microscopy, Kelvin force microscopy, scanning, tunneling microscopy (STM) in vacuum. Characterization of materials with SPM. Nanolithography with SPM. Device manufacturing and analysis. Same course as CHEM 6850 & ECEN 6850. Previously offered as PHYS 6851. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Physics

PHYS 6860 Photonics III: Microscopy III and Image Processing
Prerequisites: ECEN 5793.
Description: Digital image processing, including projects. Image acquisition and display, image enhancement, geometric operations, linear and nonlinear filtering, image restoration, edge detection, image analysis, morphology, segmentation, recognition, and coding and compression. Same course as CHEM 6860 & ECEN 6860. Previously offered as PHYS 6861. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Physics

PHYS 6870 Photonics IV: Synthesis and Devices I
Prerequisites: PHYS 6803 and PHYS 6840.
Description: Preparation of functional nanostructures and related optical and electronic devices. Physical and chemical methods of thin film deposition. Engineering of prototypes of light emitting diodes, sensors, optical limiting coatings, lithographic patterns. Same course as CHEM 6870 & ECEN 6870. Previously offered as PHYS 6871. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Physics

PHYS 6880 Photonics IV: Semiconductor Devices, Testing and Characterization
Prerequisites: PHYS 6803.
Description: Test and characterization of semiconductor and optoelectronic devices. Hall effect, four point probe, CV and IV measurements, optical pump-probe, photoluminescence, and electro-optics sampling. Same course as CHEM 6880 & ECEN 6880. Previously offered as PHYS 6881. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Physics

PHYS 6890 Photonics IV: Semiconductor Synthesis and Devices III
Prerequisites: PHYS 6803.
Description: Processing, fabrication and characterization of semiconductor optoelectronic devices in class 100/10000 cleanrooms. Cleanroom operation including general procedure for material processing and device fabrication. Device processing using a variety of processing such as mask aligner, vacuum evaporators and rapid thermal annealer. Testing using optical and electrical testing apparatus such as I-V, C-V Hall, and optical spectral measurement systems. Same course as CHEM 6890 & ECEN 6890. Previously offered as PHYS 6891. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Graduate
Schedule types: Lab
Department/School: Physics

Plant Biology (PBIO)

PBIO 1052 How Plants Shaped Our World (LN)
Description: Experience the connections between plants and everything in our world - from food and clothing to history and art. Learn why the first physicians were botanists. See how the search for black pepper led to the discovery of a new world and to masterpieces by Dutch painters. Discover how plants work by growing and experimenting with them.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

PBIO 1404 Plant Biology (LN)
Description: Basic concepts in the biology of plants from the perspective of structure and function, ecology and evolution, and diversity. Students gain experience with the process of science by proposing hypotheses, designing and conducting experiments and interpreting data. Previously offered as BOT 1404, BIOL 1404, BIOL 1403, and BISC 1403.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology
General Education and other Course Attributes: Laboratory-Based Inquiry, Natural Science Reasoning

PBIO 2110 Special Topics in Plant Biology
Prerequisites: Consent of instructor.
Description: Special studies in any area of plant biology. Offered for variable credit, 1-6 credit hours, maximum of 15 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biology

PBIO 2200 Undergraduate Research
Prerequisites: Consent of instructor.
Description: Undergraduate research problems in plant biology. Graded on a pass/fail basis. Offered for variable credit, 1-6 credit hours, maximum of 15 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biology

PBIO 2403 Introduction to Plant Molecular Biology
Prerequisites: CHEM 1314 with a "C" or better; and PBIO 1404 or (BIOL 1113 and BIOL 1111) or BIOL 1114
Description: Concepts, principles, and themes in plant molecular biology, including structures and functions of biomolecules, representative molecular reactions, and regulations of such reactions in everyday plant life.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

PBIO 2890 Honors Experience in Plant Biology
Prerequisites: Honors Program participation and concurrent enrollment in a designated BIOL or PBIO course.
Description: A supplemental Honors experience in Plant Biology to partner concurrently with designated upper-division BIOL or PBIO course(s). The course adds a different intellectual dimension to the designated course. Same course as PBIO 3890. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Honors Credit

PBIO 3024 Plant Diversity
Prerequisites: BOT 1404 or equivalent.
Description: Forms and life histories of selected plants with emphasis on some of the less familiar forms. The diversity of plant forms as well as basic similarities in life histories; importance of each form to humans and their environment. Previously offered as BOT 3024.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 3110 Special Topics in Plant Biology
Prerequisites: Consent of instructor.
Description: Special studies in any area of plant biology. Offered for variable credit, 1-6 credit hours, maximum of 15 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biology

PBIO 3114 Plant Taxonomy
Prerequisites: PBIO 1404 or equivalent.
Description: Survey of vascular plant families in a phylogenetic framework, and the morphological characters that define them. Principles and practice of plant classification theory and methods. Lab focuses on the identification of species that comprise the Oklahoma flora. Previously offered as BOT 3114.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 3253 Environment and Society (N)
Prerequisites: At least one college level science course strongly recommended.
Description: The environmental impacts of human activities and population growth on the natural world, and possible solutions. Previously offered as BOT 3253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Natural Science Reasoning

PBIO 3263 Plants and People (N)
Description: Study of how plant use has changed the course of world history. This includes the uses of plants and plant products for food and beverages, shelter, fiber, and medicinal and pharmaceutical purposes. Previously offered as BOT 3263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Natural Science Reasoning

PBIO 3273 Medical Botany (N)
Description: Study of plants as a source of medicines, psychoactive compounds and poisons. These topics will be explored in the context of modern western medicine as well as traditional health systems and complementary alternative medicine. Previously offered as BOT 3273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Natural Science Reasoning

PBIO 3403 Hopeful Monsters: Laboratory Analysis of Plant Mutants
Prerequisites: PBIO 1404 or BIOL 1113.
Description: The course will focus on the analysis of selected mutants of the model plant Arabidopsis thaliana. The mutations affect different parts of the plant, including altered cell types, organ identity changes, malformed tissues and organs, unusual organ or seed sizes, and altered fertility. There are seven modules, each consisting of directed and independent analyses of mutations. Light microscopy will be the primary method for the analysis of the mutations.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 3553 Fungi: Myths and More
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: This course explores fungal biology and its roles in the environment and impacts on the health and nutrition of plants, animals and humans. Topics include the ethnomycological and industrial uses of fungi in foods, fermentations, medicines, and intoxicants, and the colorful folklore and myths associated with these diverse, enigmatic organisms. Laboratory instruction includes microscopy, microbiological methods, mushroom cultivation, and identification of microfungi and wild mushrooms. Same course as PLP 3553. Previously offered as BOT 3553.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 3890 Advanced Honors Experience in Plant Biology
Prerequisites: Honors Program participation and concurrent enrollment in a designated BIOL or PBIO course.
Description: A supplemental Honors experience in Plant Biology to partner concurrently with designated upper-division BIOL or PBIO course(s). The course adds a different intellectual dimension to the designated course. Same course as PBIO 2890. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology
General Education and other Course Attributes: Honors Credit

PBIO 4005 Field Botany
Prerequisites: PBIO 1404 or equivalent.
Description: Botanical field techniques, the vegetation of North America, and the flora of Oklahoma. Terminology of description, use of taxonomic keys, techniques of specimen preservation, field recognition of plant taxa and communities and controlling ecological factors, economic and wildlife significance of dominant taxa, principles of classification and nomenclature. Three weekend field trips required. May not be used for degree credit with PBIO 5003. Previously offered as BOT 3005.
Credit hours: 5
Contact hours: Lecture: 3 Lab: 4 Contact: 7
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 4013 Biological Microtechnique
Prerequisites: PBIO 1404 or BIOL 1604.
Description: Theories, principles, and methods related to the usage of the light microscope and to the preparation of biological materials for light microscopic examination. May not be used for degree credit with PBIO 5013. Previously offered as BOT 3013.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 3 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 4110 Special Topics in Plant Biology
Prerequisites: Consent of instructor.
Description: Special studies in any area of plant biology. Offered for variable credit, 1-6 credit hours, maximum of 15 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biology

PBIO 4233 Plant Anatomy
Prerequisites: BOT 1404 or equivalent.
Description: Structures of cells, tissues and organs of plants and the developmental, phylogenetic, and functional contexts of the structures. May not be used for degree credit with PBIO 5233. Previously offered as BOT 3233.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 4400 Undergraduate Research
Prerequisites: Consent of instructor.
Description: Undergraduate research problems in plant biology. Previously offered as BOT 4400. Offered for variable credit, 1-6 credit hours, maximum of 15 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biology

PBIO 4423 Plant Mineral Nutrition
Prerequisites: PBIO 4463 or concurrent enrollment.
Description: Uptake, translocation, metabolism, and biochemical function of mineral nutrients in higher plants. May not be used for degree credit with PBIO 5423. Previously offered as BOT 4423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

PBIO 4462 Plant Physiology Laboratory
Prerequisites: PBIO 4463 or PBIO 5463 or concurrent enrollment.
Description: Skills in techniques for working with plants, experiments involving nutrition, respiration, photosynthesis, water relations, translocation, hormones, growth and development. Previously offered as BOT 3460 and BOT 3462.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Biology

PBIO 4463 Plant Physiology
Prerequisites: PBIO 1404 or equivalent.
Description: Plant subcellular structure, water relations, water absorption and ascent of sap, translocation, gaseous exchange, nutrition, enzymes, respiration, photosynthesis, growth, development, reproduction, tropisms, hormones, dormancy and seed germination. May not be used for degree credit with PBIO 5463. Previously offered as BOT 3463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biology

PBIO 4524 Biological Laboratory Instrumentation
Prerequisites: CHEM 1515 or equivalent and (BOT 1404 or MICR 2123 or BIOL 1604 or equivalents or consent of instructor).
Description: Lecture and laboratory course in biological instrumentation use, theory, experimental design, maintenance, and troubleshooting. Topics include liquid handling systems, pH/ISE meters, electrophoresis, microcontrollers, spectrophotometers, centrifuges, chromatography, thermacylers, and DNA sequencers. Same course as BIOL 4524, MICR 4524.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 4553 Molecular Phylogenetic Analysis
Prerequisites: Undergraduate genetics strongly recommended.
Description: Covers the use of molecular sequence data to construct evolutionary trees. It integrates theory and computer applications to answer questions involving species relationships, gene evolution, molecular evolution and morphological change, co-evolution, and biogeographic relationships. May not be used for degree credit with PBIO 5553.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 4654 Plant Secondary Metabolism
Prerequisites: PBIO 1404.
Description: This course describes the biochemical pathways and functions of plant secondary metabolites, and how they have been used for medical, pharmaceutical, and agricultural research and industry. Same course as PBIO 5654.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 4800 Senior Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A research project under the direction of a faculty member resulting in a written report to be judged by a second faculty member as well. An oral presentation made at a departmental seminar. Required for graduation with departmental honors in plant biology. Previously offered as BOT 4993. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biology
General Education and other Course Attributes: Honors Credit

PBIO 4910 Internship in Plant Biology
Prerequisites: Specified hours of documented plant biology work experience.
Description: Supervised experience in an approved work situation related to future career in the plant biology field. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biology

PBIO 4990 Independent Study in Plant Biology
Prerequisites: Consent of instructor.
Description: Independent study under the supervision of a faculty member. This will include readings and discussion on a selected topic agreed upon between the student and instructor. Previously offered as BOT 4990. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Discussion
Department/School: Biology

PBIO 5000 Master's Thesis
Description: Thesis work for the MS degree. Previously offered as BOT 5000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Discussion
Department/School: Biology

PBIO 5003 Field Botany
Prerequisites: PBIO 1404 or equivalent.
Description: Botanical field techniques, the vegetation of North America, and the flora of Oklahoma. Terminology of description, use of taxonomic keys, techniques of specimen preservation, field recognition of plant taxa and communities and controlling ecological factors, economic and wildlife significance of dominant taxa, principles of classification and nomenclature. Three weekend field trips required. May not be used for degree credit with PBIO 4005.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 5013 Biological Microtechnique
Prerequisites: PBIO 1404 or BIOL 1604.
Description: Theories, principles, and methods related to the usage of the light microscope and to the preparation of biological materials for light microscopic examination. May not be used for degree credit with PBIO 4013.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 5104 Mycology
Prerequisites: Graduate standing.
Description: A systematic study of the fungi, with emphasis on taxonomy, comparative morphology, and fungal biology. Same course as PLP 5104. Previously offered as BOT 5104.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 5110 Special Topics in Plant Biology
Prerequisites: Consent of instructor.
Description: Special studies in any area of plant biology. Previously offered as BOT 5110. Offered for variable credit, 1-5 credit hours, maximum of 24 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Discussion
Department/School: Biology

PBIO 5210 Research in Plant Biology
Prerequisites: Consent of instructor.
Description: Independent research in any area of plant biology. Previously offered as BOT 5210. Offered for variable credit, 1-6 credit hours, maximum of 15 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Discussion
Department/School: Biology

PBIO 5233 Plant Anatomy
Prerequisites: PBIO 1404.
Description: Structures of cells, tissues and organs of plants and the developmental, phylogenetic, and functional contexts of the structures. May not be used for degree credit with PBIO 4233.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 5423 Plant Mineral Nutrition
Prerequisites: BOT 4463 or concurrent enrollment.
Description: Uptake, translocation, metabolism, and biochemical function of mineral nutrients in higher plants. May not be used for degree credit with PBIO 4423. Previously offered as BOT 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

PBIO 5463 Plant Physiology
Prerequisites: PBIO 1404 or equivalent.
Description: Plant subcellular structure, water relations, water absorption and ascent of sap, translocation, gaseous exchange, nutrition, enzymes, respiration, photosynthesis, growth, development, reproduction, tropisms, hormones, dormancy and seed germination. Previously offered as BOT 3463. May not be used for degree credit with PBIO 4463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

PBIO 5524 Biological Instrumentation
Prerequisites: CHEM 1515 or equivalent and (BOT 1404 or MICR 2123 or BIOL 1604 or equivalents or consent of instructor).
Description: Lecture and laboratory course in biological instrumentation use, theory, experimental design, maintenance, and troubleshooting. Topics include liquid handling systems, pH/ISE meters, electrophoresis, spectrophotometers, centrifuges, chromatography, thermocylers, and DNA sequencers. Same course as BIOL 5524 and MICR 5524.
Credit hours: 4
Contact hours: Lecture: 2 Lab: 4 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 5541 Phylogenomics
Description: Current topics in the theory and application of genome and transcriptome sequencing to phylogenetics, prediction of gene function, and evolution of genes. Previously offered as BOT 5541.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Biology

PBIO 5553 Molecular Phylogenectic Analysis
Prerequisites: Undergraduate genetics strongly recommended.
Description: Covers the use of molecular sequence data to construct evolutionary trees. It integrates theory and computer applications to answer questions involving species relationships, gene evolution, molecular evolution and morphological change, co-evolution, and biogeographic relationships. May not be used for degree credit with PBIO 4553. Previously offered as BOT 5553.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 5563 Plant Ecological Genetics
Prerequisites: Two of the following courses or their equivalent: BIOL 3023, BIOL 3034, and BIOL 4133.
Description: Basic concepts in plant population and quantitative genetics, focusing on techniques that reveal the genetic structure and the adaptive value of ecologically relevant traits. Previously offered as BOT 5563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

PBIO 5654 Plant Secondary Metabolism
Prerequisites: PBIO 1404.
Description: This course describes the biochemical pathways and functions of plant secondary metabolites, and how they have been used for medical, pharmaceutical, and agricultural research and industry. Same course as PBIO 4654.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 3 Contact: 6
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biology

PBIO 5813 Plant Developmental Genetics
Prerequisites: BIOL 3023 or equivalent.
Description: Discussion of the genetic and molecular factors that regulate reproductive and vegetative development in flowering plants. Emphasis on recent publications that deal with model genetic systems and plants of economic significance. Previously offered as BOT 5813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

PBIO 5850 Plant Biology Seminar
Description: Weekly one-hour seminar series of invited and internal speakers. Plant Sciences MS and Plant Sciences (Plant Biology) PhD students are required to present a minimum of two seminars, including one on thesis or dissertation results. Previously offered as BOT 5850. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Biology

PBIO 5910 Internship in Plant Biology
Prerequisites: Specified hours of documented plant biology work experience.
Description: Supervised experience in an approved work situation related to future career in the plant biology field. Graded on a pass/fail basis. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Discussion
Department/School: Biology

PBIO 6000 Doctoral Research
Description: Independent research for the doctoral dissertation. Previously offered as BOT 6000. Offered for variable credit, 1-15 credit hours, maximum of 60 credit hours.
Credit hours: 1-15
Contact hours: Contact: 1-15 Other: 1-15
Levels: Graduate
Schedule types: Discussion
Department/School: Biology

Plant Pathology (PLP)

PLP 3553 Fungi: Myths and More
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) or equivalent.
Description: Fungal biology covering environmental roles and impacts on the health and nutrition of plants, animals and humans. Ethnomycological and industrial uses of fungi in foods, medicines, and intoxicants, and associated folklore and myths. Microscopy, microbiological methods, mushroom cultivation, and identification of microfungi and wild mushrooms. Same course as BOT 3553 or PBIO 3553.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

PLP 4343 Principles of Plant Pathology
Prerequisites: PBIO 1404 or MICR 2123 or HORT 1013 or PLNT 2013.
Description: Introduction to basic principles and concepts of plant pathology, including the nature, cause and control of biotic and environmentally induced plant diseases, with emphasis on principles and methods of disease management. Offered in combination with PLP 5343. No credit for both PLP 4343 and PLP 5343. Previously offered as PLP 3344 and PLP 3343.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

PLP 4400 Special Topics
Prerequisites: Consent of instructor.
Description: Special topics in Plant Pathology, Entomology or related fields. Same course as ENTO 4400. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Entomology & Plant Pathology

PLP 4923 Applications of Biotechnology in Pest Management
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and CHEM 1215 or equivalent.
Description: Applications of biotechnology in controlling arthropod pests of plants and animals, plant pathogens, and weeds. Introduction to underlying technology, products being developed and deployed, their effectiveness and associated problems or concerns resulting from their use. Same course as ENTO 4923 and PLNT 4923. Previously offered as PLP 4922. May not be used for Degree Credit with PLP 5923.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Entomology & Plant Pathology

PLP 5003 Plant Nematology
Prerequisites: PLP 3343 or concurrent enrollment.
Description: General morphology, taxonomy and bionomics of nonparasitic and plant parasitic nematodes. Plant parasitic nematode assay techniques, subfamily identification, symptomology, pathogenicity and control. Previously offered as PLP 5004.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

PLP 5613 Host Plant Resistance
Prerequisites: ENTO 3343 and ENTO 2993 or equivalent and a general genetics course; or consent of instructor.
Description: Interactions of plants and the herbivorous insects and pathogenic micro-organisms that attack them. Development and deployment of multiple-pest resistant cultivars in crop management systems. Same course as ENTO 5613.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

PLP 5860 Colloquium
Prerequisites: PLP 3343.
Description: Concepts and principles of plant pathology through discussions of pertinent literature. Offered for fixed credit, 2 credits, maximum of 2 credit hours.
Credit hours: 2
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Entomology & Plant Pathology

PLP 6303 Soilborne Diseases of Plants
Prerequisites: PLP 3343.
Description: Soilborne diseases, their reception and importance, the pathogens involved, rhizoplane and rhizosphere influences, inoculum potential, specialization of pathogens, suppressive soil effects, and disease management. Lecture and discussion sessions will emphasize in-depth understanding of problems and complexities associated with studies of soilborne pathogens.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Entomology & Plant Pathology

Plant Science (PLNT)

PLNT 1101 Orientation to Plant and Soil Sciences
Description: Introduction to areas of study, professional activities and career opportunities in plant and soil sciences.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 1213 Introduction to Plant and Soil Systems (N)
Description: Introduction to the concepts of plant and soil systems including cropland, rangeland and pastureland. A systems approach to the importance of plant and soil resources to the producer, consumer and citizen; modern management and production practices; maintenance of natural resources. Previously offered as AGRN 1213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences
General Education and other Course Attributes: Natural Science Reasoning

PLNT 2011 Agronomic Problem Solving
Prerequisites: PLNT 1213 or HORT 1013 or PBIO 1404 and MATH 1513 or Instructor Permission.
Description: Practical solutions to common agronomic and soil science issues.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Plant & Soil Sciences

PLNT 2013 Applied Plant Science
Prerequisites: PLNT 1213 or BOT 1404 or FOR 1123 or HORT 1013.
Description: Application of agronomic principles to the management, improvement and use of plants. Structure and growth of crop plants relating to management strategies and adaptation to varying abiotic and biotic factors. Hands-on identification of crops, weeds, and seed quality factors; application of tools and techniques. Previously offered as PLNT 2012 and AGRN 2012.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

PLNT 2041 Career Development in Plant and Soil Sciences
Prerequisites: Sophomore standing in plant and soil sciences.
Description: Develop professional skills, learn about career development resources, and understand the steps of the application and interview process. Engage industry professionals to learn about experiences and viewpoints regarding the job market. Identify career path, develop action plan to meet job requirements and gain basic understanding of personal financial management. Previously offered as AGRN 2041.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 2890 Introductory Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental introductory honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated courses. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 3012 Crops of Oklahoma
Prerequisites: PLNT 1213.
Description: Production, distribution, classification, utilization, and current issues or improvements of major crops in Oklahoma. This course includes, but is not limited to, wheat, soybean, sorghum, corn, peanuts, cotton, sunflowers, and bermuda grass. Previously offered as PLNT 3011.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 3554 Plant Genetics and Biotechnology
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111).
Description: Basic principles of heredity. Interrelationship between classical genetics and molecular genetics emphasized. Mendelian genetics, cytogenetics, mutations, gene regulation and genetic engineering. Previously offered as AGRN 3554.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

PLNT 3790 Seed and Plant Identification
Prerequisites: PLNT 1213.
Description: Identification and classification of agronomically important crop and weed species from seed and from seedling, vegetative, flowering or mature plants. Offered for fixed credit, 1 credit hours, maximum of 2 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 3890 Advanced Honors Add-On
Prerequisites: Honors College participation and concurrent enrollment in a designated course.
Description: A supplemental advanced honors experience to partner concurrently with designated course(s). This course adds a different intellectual dimension to the designated course(s). Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4013 Fundamentals of Weed Science
Prerequisites: PLNT 1213 or HORT 1013.
Description: Fundamentals of weed biology and ecology aimed at understanding life cycles, growth characteristics, and ecological impacts. Identification of common weeds in South-Central US production systems utilizing live plants, hands-on activities, and field visits. Holistic system approach to understanding weed population dynamics and integrated weed management with special attention to chemical weed management alongside cultural, mechanical, and biological control methods. Introductory concepts in herbicide-resistant weeds. Previously PLNT 3113 & 3211. May not be used for Degree Credit with PLNT 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4033 Applied Agricultural Meteorology
Prerequisites: PLNT 1213 and SOIL 2124.
Description: Fundamental meteorology concepts in field-scale setting. Drivers of climate and weather and the assessment of the impacts of climate and weather on agricultural systems. Integration of weather and climate information into the process of formulating sound, data-based decisions related to various agricultural operations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4080 Professional Internship
Prerequisites: Consent of instructor.
Description: Internship must be at an approved agribusiness unit or other agency serving agronomic agriculture. Requires a final conference with on campus adviser and a written report. Previously offered as AGRN 4080. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 4113 Advanced Weed Science
Prerequisites: PLNT 4013
Description: Advanced principles focused on herbicide mode and mechanism of action, factors influencing herbicide activity, herbicide formulations, and application techniques. Selection of appropriate herbicides for various weed scenarios, herbicide application, soil-herbicide interaction, and identification of herbicide injury symptomology on various crops and weeds. Activities emphasize sprayer calibration, herbicide application strategies, and close examination of herbicide symptomology in field and greenhouse settings. Previously offered as AGRN 4113. May not be used for Degree Credit with PLNT 5113.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

PLNT 4123 Plant-Environment Interactions
Prerequisites: PBIO 1404.
Description: Environmental impact on plant life cycle; (i.e. germination, flowering and senescence); plant growth responses (e.g. photosynthesis, phototropism, biomass production) to light quality, precipitation, temperature, and population or community changes. Previously offered as AGRN 4123. May not be used for Degree Credit with PLNT 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4133 Temperature Stress Physiology
Prerequisites: CHEM 1215 and BIOL 1114 (or BIOL 1113 and BIOL 1111) or PBIO 1404
Description: Effects of heat, chilling and freezing stress on plants. Responses to temperature extremes at the molecular to whole plant levels with emphasis on mechanisms of injury and resistance. Same course as HORT 4133. Offered in combination with HORT 5133 and PLNT 5133. May not be used for degree credit with HORT 5133 and PLNT 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4243 Crop Nutrition
Prerequisites: SOIL 4234 or equivalent and PBIO 4463, or instructor approval
Description: Plant nutrient uptake mechanisms, translocation, and the metabolic and physiological roles of micro- and macronutrients in crop production. Additional focus on how nutrient deficiencies, as well as water, temperature, and pest stresses influence nutrient function and utilization in agronomic crops. May not be used for Degree Credit with PLNT 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4353 Plant Breeding
Prerequisites: PLNT 3554 or equivalent.
Description: Basic principles dealing with the improvement of plants through application of genetic principles. Previously offered as AGRN 4353. May not be used for Degree Credit with PLNT 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4443 Cropping Systems
Prerequisites: PLNT 1213 or HORT 1013 or BOT 1404; PLNT 2013.
Description: Principles of developing and managing cropping systems in the Great Plains for the efficient use and conservation of soil and water resources while promoting yield, managing soil fertility, and effectively controlling pests. May not be used for degree credit with PLNT 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4453 Plant Molecular Breeding
Prerequisites: ANSI 3423 or BIOL 3023 or consent of instructor.
Description: Use and application of genomic knowledge and molecular technology to improve agriculturally important plants. Major topics include applications of genome sequence, genetic mapping, and gene cloning structural and comparative genomics and their application in molecular breeding of agronomic crops. May not be used for degree credit with PLNT 5453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4470 Problems and Special Study
Prerequisites: Consent of instructor.
Description: Problems in plant science selected from topics in range and turf, plant breeding and genetics, crop management and physiology, and weed control. Previously offered as AGRN 4470. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 4571 Professional Preparation in Plant and Soil Sciences
Prerequisites: Senior standing in plant and soil sciences.
Description: Preparation for professional certification exams and career opportunities in plant and soil sciences. Same course as SOIL 4571. Previously offered as AGRN 4571.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4573 Bioenergy Feedstock Production
Prerequisites: PLNT 1213.
Description: Understand production and management practices for potential bioenergy feedstocks. Distinguish feedstock sources and end products. Identify physiological mechanisms to improve yield and quality under current and future climates. Use simulation and GIS tools to project biomass and ethanol yields. May not be used for Degree Credit with PLNT 5573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4613 Forage and Grazinglands Resource Management
Prerequisites: PLNT 1213 or BOT 1404.
Description: Designing forage systems that optimize yield potential, economical livestock production and pasture system development. Previously offered as RLEM 4613, PLNT 3213, and AGRN 4613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4923 Applications of Biotechnology in Pest Management
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and CHEM 1215 or equivalents.
Description: Applications of biotechnology in managing arthropod pests of plants, animals, plant pathogens, and weeds. Introduction to underlying technology, products being developed and deployed, effectiveness and associated problems or concerns resulting from their use. Same course as ENTO 4923, PLP 4923, and PLNT 4922. May not be used for Degree Credit with PLNT 5923.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 4933 Gene Editing and Genetically Modified Crops
Prerequisites: PLNT 3554 or ANSI 3423 or BIOL 3023 or Consent of Instructor.
Description: Principles and techniques in editing and overexpressing genes in transgenic crops with improved agronomic traits. Controversies and consumer concerns over transgenic plants, biotechnology regulations and global status of biotech crops. Laboratory techniques in recombinant DNA cloning, transformation, and tissue culture. May not be used for Degree Credit with PLNT 5933.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

PLNT 4990 Senior Thesis in Plant and Soil Sciences
Prerequisites: Consent of instructor.
Description: Supervised undergraduate research in topics related to plant and soil sciences. Completion of an approved research project based on a thesis topic in plant or soil science will include submission of a written report and a public defense of the work. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 5000 Master's Thesis
Prerequisites: Consent of advisor.
Description: Research planned, conducted and reported in consultation with a major professor. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 5013 Fundamentals of Weed Science
Prerequisites: PLNT 1213 or HORT 1013.
Description: Fundamentals of weed biology and ecology aimed at understanding life cycles, growth characteristics, and ecological impacts. Identification of common weeds in South-Central US production systems utilizing live plants, hands-on activities, and field visits. Holistic system approach to understanding weed population dynamics and integrated weed management with special attention to chemical weed management alongside cultural, mechanical, and biological control methods. Introductory concepts in herbicide-resistant weeds. May not be used for Degree Credit with PLNT 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5020 Graduate Seminar
Prerequisites: Graduate standing.
Description: Discussions of research philosophy, methods, interpretation and presentations. Profession development and contributions to the scientific community. Same course as SOIL 5020. Offered for fixed credit, 1 credit hour, maximum of 3 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 5110 Problems and Special Study
Prerequisites: Consent of instructor.
Description: Supervised study of special problems and topics not covered in other graduate courses. Previously offered as AGRN 5110. Offered for variable credit, 1-4 credit hours, maximum of 12 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 5113 Advanced Weed Science
Description: Advanced principles focused on herbicide mode and mechanism of action, factors influencing herbicide activity, herbicide formulations, and application techniques. Selection of appropriate herbicides for various weed scenarios, herbicide application, soil-herbicide interaction, and identification of herbicide injury symptomology on various crops and weeds. Activities emphasize sprayer calibration, herbicide application strategies, and close examination of herbicide symptomology in field and greenhouse settings. Previously offered as AGRN 4113. May not be used for Degree Credit with PLNT 4113.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

PLNT 5123 Plant-Environment Interactions
Prerequisites: PBIO 1404.
Description: Environmental impact on plant life cycle; (i.e. germination, flowering and senescence); plant growth responses (e.g. photosynthesis, phototropism, biomass production) to light quality, precipitation, temperature, and population or community changes. May not be used for degree credit with PLNT 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5133 Temperature Stress Physiology
Description: Effects of heat, chilling and freezing stress on plants. Responses to temperature extremes at the molecular to whole plant levels with emphasis on mechanisms of injury and resistance. Same course as HORT 5133. Offered in combination with HORT 4133 and PLNT 4133. No credit with degree credit in HORT 4133 and PLNT 4133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5230 Research
Prerequisites: Consent of a faculty member supervising the research.
Description: Supervised independent research on selected topics. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 5243 Crop Nutrition
Prerequisites: SOIL 4234 or SOIL 5234 or equivalent course or instructor approval
Description: Plant nutrient uptake mechanisms, translocation, and the metabolic and physiological roles of micro- and macronutrients in crop production. Additional focus on how nutrient deficiencies, as well as water, temperature, and pest stresses influence nutrient function and utilization in agronomic crops. May not be used for Degree Credit with PLNT 4243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5293 Plant Response to Water Stress
Prerequisites: BIOC 3653, BOT 3463.
Description: Physiological ramifications of water deficit stress on cells, tissues, plants and canopies. Discussion of the soil/plant/atmosphere continuum, and avoidance and tolerance mechanisms leading to drought resistance. Photosynthesis, transpiration, and water-use efficiency and their relationship to biomass accumulation and crop yield. Previously offered as AGRN 5293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5313 Simulation Models in Research, Management and Policy
Prerequisites: PLNT 1213.
Description: Use crop simulation models (CSM) and decision support systems to address challenges associated with food, fuel, feed and fiber production. Utilize CMS as research, management, and policy tools. Evaluate CSM as surrogates to field studies and to design experiments to fill in knowledge gaps.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5353 Plant Breeding
Prerequisites: PLNT 3554 or equivalent.
Description: Basic principles dealing with the improvement of plants through application of genetic principles. May not be used for degree credit with PLNT 4353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5403 Physiological Action of Herbicides
Prerequisites: BOT 3463.
Description: The mode of action, uptake and translocation, and metabolism of herbicides in crops and weeds. Previously offered as AGRN 5403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5412 Plant Breeding Methods
Prerequisites: PLNT 3554 or PLNT 4353 or consent of instructor.
Description: Development and application of genetic principles to breeding methodology of self- and cross-pollinated crops; emphasis on selection methods pertinent to plant improvement; methods of new cultivar development, release, and commercialization. Previously offered as PLNT 5414.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5413 Data Science for Agriculture and Natural Resources
Description: Data science principles and skills in the context of agricultural and natural resources research. Topics include data capture, quality control, data manipulation, visualization, reproducible analysis, and communication of results. Emphasis on workflows and analytical techniques tailored for agricultural and natural resource management research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5433 Biotechnology in Plant Improvement
Prerequisites: PLNT 3554, PLNT 4353, and BIOL 3014 or consent of instructor.
Description: Use of emerging technologies in cell biology and molecular genetics to study and manipulate plants. Emphasis on genetic systems which influence productivity and end-product utilization. The integration of biotechnology into plant breeding programs and issues concerning the release of genetically engineered organisms into the environment. Previously offered as AGRN 5433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5453 Plant Molecular Breeding
Prerequisites: ANSI 3423 or BIOL 3023 or consent of instructor.
Description: Use and application of genomic knowledge and molecular technology to improve agriculturally important plants. Major topics include applications of genome sequence, genetic mapping, and gene cloning structural and comparative genomics and their application in molecular breeding of agronomic crops. May not be used for degree credit with PLNT 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5543 Cropping Systems
Description: Principles of developing and managing cropping systems in the Great Plains for the efficient use and conservation of soil and water resources while promoting yield, managing soil fertility, and effectively controlling pests. May not be used for degree credit with PLNT 4443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5573 Bioenergy Feedstock Production
Prerequisites: PLNT 1213.
Description: Understand production and management practices for potential bioenergy feedstocks. Distinguish feedstock sources and end products. Identify physiological mechanisms to improve yield and quality under current and future climates. Use simulation and GIS tools to project biomass and ethanol yields. May not be used for degree credit with PLNT 4573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5923 Applications of Biotechnology in Pest Management
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and CHEM 1215 or equivalents.
Description: Applications of biotechnology in managing arthropod pests of plants, animals, plant pathogens, and weeds. Introduction to underlying technology, products being developed and deployed, effectiveness and associated problems or concerns resulting from their use. May not be used for degree credit with PLNT 4923.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

PLNT 5933 Gene Editing and Genetically Modified Crops
Prerequisites: PLNT 3554 or ANSI 3423 or BIOL 3023 or consent of instructor.
Description: Principles and techniques in editing and overexpressing genes in transgenic crops with improved agronomic traits. Controversies and consumer concerns over transgenic plants, biotechnology regulations and global status of biotech crops. Laboratory techniques in recombinant DNA cloning, transformation, and tissue culture. May not be used for degree credit with PLNT 4933.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

PLNT 6000 Doctoral Thesis
Prerequisites: Consent of adviser.
Description: Independent research to be conducted and reported with the supervision of a major professor as partial requirement for the PhD degree. Offered for variable credit, 1-6 credit hours, maximum of 36 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 6010 Advanced Topics and Conference
Prerequisites: MS degree.
Description: Supervised study of advanced topics. A reading and conference course designed to acquaint the advanced student with fields not covered in other courses. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

PLNT 6410 Topics in Plant Breeding and Genetics
Prerequisites: Consent of instructor.
Description: Selected topics in the statistical and experimental analysis of quantitative traits, evolutionary development of domesticated plants and animals, and techniques used in breeding crop plants. Previously offered as AGRN 6410. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

Political Science (POLS)

POLS 1010 Studies in American Government
Description: Special study in American government to allow transfer students to fulfill general education requirements as established by Regents' policy. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Political Science

POLS 1113 American Government
Description: Organization, processes and functions of the national government of the United States. Satisfies, with HIST 1103 or 1483 or 1493, the State Regents requirement of six credit hours of American history and American government before graduation. Previously offered as POLS 1013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour, Cowboy Concur OL Res Tuition fee of $189.10 per credit hour, STW HS Concurrent Enroll Tuit fee of $189.10 per credit hour, and Individ Study Tuition and fee of $189.10 per credit hour apply.

POLS 2000 Topics in American Politics (S)
Description: Introductory examination of timely topics and issues in American Politics. May be repeated with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Society & Human Behavior

POLS 2010 Topics in International Relations (G)
Description: Introductory examination of timely topics and issues in International Relations. May be repeated with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension

POLS 2013 Introduction to International Relations (S)
Description: Analysis and explanation of the political, economic, and social relationships that exist between countries. Broad topics include major actors in international relations, the role of power on the global stage, interstate and civil conflict, cooperation, and economic security. The assumptions of major international relations theories, such as realism and liberalism, are explained. Previously offered as POLS 3013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Society & Human Behavior

POLS 2020 Topics in Public Law (S)
Description: Introductory examination of timely topics and issues in Public Law. Maybe repeated with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Society & Human Behavior

POLS 2023 Introduction to Law and Legal Studies (S)
Description: Introduction to the U.S. Constitution, legal reasoning, legal research techniques, and topical issues of U.S. public law.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Society & Human Behavior

POLS 2030 Topics in Public Policy & Administration
Description: Introductory examination of timely topics and issues in Public Policy and Administration. May be repeated with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 2033 Introduction to Public Administration
Description: Public administration, including administration, administrative organization, decision-making, governmental public relations and administrative responsibilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 2110 Topics in Comparative Politics (G)
Description: Introductory examination of timely topics and issues in Comparative Politics. May be repeated with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension

POLS 2113 Introduction to Comparative Politics (GS)
Description: A study of the domestic politics, society, and economies in countries around the world.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension, Society & Human Behavior

POLS 2213 Fundamentals of Political Science
Description: This course provides an overview of Political Science as a field of study, and it provides students with basic research literacy and other skills essential to success as a Political Science major.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 2313 Social Justice Politics (D)
Description: This course examines race, ethnicity, class, gender, sexuality, religion, age, ability, and in a number of realms, particularly the political. Specific social justice issues discussed include immigration reform, religious accommodations in the workplace, the gender gap In wages and political office holding, income and wealth inequality, racial and ethnic discrimination, same-sex marriage, ageism and disability access.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Diversity

POLS 2423 Voting and Elections
Description: A study of the major issues, voting patterns, institutional factors, and political factors shaping elections with a focus on current U.S. elections. May include a discussion of how U.S. elections compare to other countries. Previously offered as POLS 3423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 2523 Black Political Thought
Description: Black Political Thought develops a set of critical tools to help explain the distinctiveness of Black Politics. It pursues a deep understanding of the Black intellectual traditions that inform an enhanced understanding of Political Theory's core concepts. Using the lens of the African diaspora it investigates the abiding concerns of Political Theory, i.e., the meanings of justice, freedom, and equality; the nature of power, obligation, and "the good life." Same course as AFAM 2523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Diversity

POLS 2890 Honors Experience in Political Science
Prerequisites: Honors Program participation and concurrent enrollment in a designated Political Science course.
Description: A supplemental Honors experience in Political Science to partner concurrently with designated Political Science course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Honors Credit

POLS 2993 Honors Tutorial in Political Science
Prerequisites: POLS 1113. Honors standing, and invitation by head of department.
Description: For the special needs of the sophomore-level honors student majoring in political science who wishes to study individualized topics at an accelerated pace in a tutorial format. After mastering basic principles in an area of interest the student will conduct independent research under close faculty supervision and prepare a report or reports.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Political Science

POLS 3003 The Soviet Union: History, Society and Culture(GS)
Description: A comprehensive view of the Soviet Union, stressing those issues in the political, economic, technological, geographical and cultural spheres which are most relevant to the current situation. Accessible to beginning undergraduates. Same course as HIST 3003 & RUSS 3003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension, Society & Human Behavior

POLS 3033 International Law
Description: International laws between countries arise from customary law, treaties, and other international agreements. This course examines international law surrounding international diplomacy, conflict, organizations, and the international political reasons for the creation, compliance, and violation of such laws.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3053 Introduction to Central Asia Studies (IS)
Description: A comprehensive view of newly-emerged Central Asian states examining the history, politics, economics, geography, and culture of Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan as reflected in their thoughts, religion, literature, and architecture, in the past, and the strategic importance of their natural wealth for the present and future. Same course as GEOG 3053, GLST 3053, HIST 3053 & RUSS 3053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3090 Teaching Practicum
Prerequisites: Consent of instructor.
Description: For outstanding students. Students will work with a faculty instructor and assist in many aspects of teaching including guest lecturing, offering study sessions, office hours, among other duties as determined by instructor. May involve meetings and written paper(s). Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Political Science

POLS 3100 Political Science Internship
Prerequisites: Consent of department.
Description: Internship education experience in a specific subfield in the discipline of political science. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Political Science

POLS 3101 Oklahoma Intercollegiate Legislature
Description: OSU Oklahoma Intercollegiate Legislature provides students with hands on experience in the legislative process. It is a mock legislature with the intended goal of passing bills and learning parliamentary procedure. Students learn how to research and draft legislation, build coalitions, and debate the merits of their bills. Participation in O.I.L. gives students a behind the scenes look at how state government conducts business. The result is academic learning in a real world setting. This course is a pass/fail grade. Offered for fixed credit, 1 credit hour.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3103 Introduction to Political Inquiry
Prerequisites: Sophomore, Junior and Senior standing.
Description: The scope and methods of political science. Scientific methodology applied to political phenomena, hypothesis, measurement, literature review, research designs, introductory data analysis and writing in political science. Previously offered as POLS 4003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3123 Russian & Eurasian Politics (G)
Description: An overview of the major political, social, and economic challenges facing Russia and its neighbors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension

POLS 3143 European Politics (G)
Description: An overview of the major political, social, and economic challenges facing European countries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension

POLS 3163 African Politics (G)
Description: An overview of the major political, social, and economic challenges facing African countries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension

POLS 3193 Latin American Politics (GS)
Description: An overview of the major political, social, and economic challenges facing Latin American countries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension, Society & Human Behavior

POLS 3223 Asian Politics
Description: An overview of the major political, social, and economic challenges facing Asian countries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3313 Middle Eastern Politics
Description: An overview of the major political, social, and economic challenges facing Middle Eastern countries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3353 Political Parties
Description: An examination of political parties, including the role of parties in elections and government, how parties have changed through time, why there are only two major parties in the United States, and what factors influence how parties behave.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3443 Pol Campaigns And Candidacy
Description: Planning, fundraising, targeting, public opinion, support operations, voter contact, the mass media and candidate activities. Previously offered as POLS 3414.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3453 U.S. Congress
Description: The power and organization of legislatures, as well as the selection and behavior of legislators. Special attention given to the U.S. Congress.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3483 The American Presidency
Description: The politics of presidential selection, removal and succession; formal and informal powers of the president; relations with Congress, the national judiciary and national executive branch; proposed reforms and the vice-presidency.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3493 Public Policy
Prerequisites: Any one of POLS 1013, POLS 2033, ECON 1113.
Description: Identification of policy options open to policy makers and examination of measurements and rationales underlying governmental programs. May not be used for degree credit with POLS 5613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3513 Public Opinion and Polling
Description: The nature of public opinion. Public opinion polling, the factors influencing opinion formation, and the effects of public opinion on policy and policy makers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3523 Money, Media And Politics
Prerequisites: POLS 1113.
Description: Techniques used by successful candidates for elective office to present their positions to the voting public. Beginning with the basic elements of fundraising exploration of current campaign finance laws, funding techniques and campaign budgeting. Message development, media production and ad placement. Preparation of a fundraising strategy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3533 Lobbying and the Power of Organized Interests
Prerequisites: POLS 1113.
Description: An exploration of how political scientists understand organized interests and their lobbying and grassroots activities. Topics may include the origin of interests, collective action problems, lobbying techniques, and grassroots activism, campaign finance, influence of groups in government, and who is powerful and why.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3613 State and Local Government
Description: Political processes, government and administration of American states, cities and counties; special emphasis on Oklahoma.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3663 Introduction to Political Thought
Description: The teachings of the three lasting traditions of Western political thought: classical, Christian and modern.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3683 Politics in Contemporary Film
Prerequisites: POLS 1113.
Description: The effect of politics on contemporary film. Exploration of the often subtle political imagery and symbolism contained in film.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3893 Terrorism & Counterterrorism
Description: This course examines the definition, causes, and consequences of terrorist activity. Special emphasis will also be given to key domestic and international counterterrorism responses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3953 Minorities in the American Political System (DS)
Prerequisites: POLS 1113.
Description: Examination of mass and elite level behavior of minorities in the contemporary U.S. political system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Diversity, Society & Human Behavior

POLS 3963 State Courts and the Bar
Description: This course will cover the various constraints that exist within the decision-making outcomes of state courts, as well as the institutional biases found within state run criminal justice systems. It looks at the increasingly partisan nature of state court election cycles and the contemporary status of the legal academy, the Bar, and the economics of law firms. It will be particularly useful to those students thinking about continuing their education with the pursuit of a law degree.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3973 Race, Politics and Sports (D)
Prerequisites: POLS 1113.
Description: Historical, as well as the contemporary relationship, between race, politics and sports in the U.S. political system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Diversity

POLS 3983 Courts and Judicial Process
Description: The American judiciary and legal process from a political perspective with particular emphasis on judicial organization and powers, recruitment, fact-finding, decision-making, impact of decisions, the legal profession and relations among courts. Oklahoma judicial organization.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 3993 Legal Research And Analysis
Prerequisites: POLS 2023 or HONR 2013.
Description: Introduction to legal research methods, including state and federal reported cases, digests, annotated codes, state and federal administrative regulations, and computerized legal research, as well as an introduction to legal reasoning and analysis and the preparation of case briefs and memoranda.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4000 Advanced Topics in American Politics
Prerequisites: POLS 1113 or consent of instructor.
Description: In-depth examination of critical topics and issues in American politics, including American political behavior and political leadership. May be repeated with different topics. May not be used for degree credit with POLS 5710. Offered for variable credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4010 Advanced Topics in International Relations
Prerequisites: POLS 2013 or POLS 2113 or consent of instructor.
Description: In-depth examination of critical topics and issues in International Relations. May be repeated with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours. May not be used for degree credit with POLS 5210.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4013 American Foreign Policy
Description: An introduction to the history of America's foreign policy (with an emphasis on foreign relations since WWII), the dominant themes and goals of American foreign policy throughout time, contemporary issues that face the United States, and how foreign policy is made and enforced. May not be used for degree credit with POLS 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4020 Advanced Topics in Comparative Politics
Prerequisites: POLS 2013 or POLS 2113 or consent of instructor.
Description: In-depth examination of critical topics and issues in Comparative Politics. May be repeated with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours. May not be used for degree credit with POLS 5410.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4023 Intelligence and Security Analysis
Description: An introduction to the world of intelligence analysis. Students will gain a basic understanding of the different types of intelligence, the way intelligence is analyzed, and the ways that analysts present their findings to the consumer. Students will learn critical thinking techniques used by professionals and apply them to hypothetical and real-world problems. May not be used for degree credit with POLS 5223
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4033 Civil Wars (G)
Prerequisites: POLS 1113.
Description: This course focuses on civil wars, insurgencies, and other conflicts that occur within the borders of countries. The course intends to present current theories and understanding of civil wars that can inform the examination and explanation of such conflicts, including why conflicts start, how conflicts end, the goals and strategies of rebel groups and governments, and the long-term effects of conflict are critical to forming domestic and international policies that provide peaceful alternatives to violence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension

POLS 4043 Global Political Economy
Description: An introduction to the major players, challenges, and theories shaping the modern global economy. Topics include economic development, globalization, trade, and foreign investment. May not be used for degree credit with INTL 5043. Previously offered as POLS 3043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4053 War And World Politics (G)
Description: Students are introduced to the scientific study of war. Topics include why countries engage in conflict, the conduct of war, the ways in which wars end, and how peace is maintained between former rivals.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: International Dimension

POLS 4100 Problems of Government, Politics and Public Policy
Description: Special problem areas of government, politics and public policy concentrating on topics not covered in other departmental course offerings. May not be used for degree credit with POLS 5100. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Political Science

POLS 4113 International Organization
Description: The last one hundred years have seen the rise of international organizations. This class explores the reasons for this proliferation, as well as the impact of organizations such as the United Nations, North Atlantic Treaty Organization, etc. for the conduct of international relations. May not be used for degree credit with POLS 5163.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4223 Social Movements
Prerequisites: POLS 1113.
Description: A study of the origins, activities, and impact of political and social movements. Students examine these theories and concepts by learning about several contemporary movements from other countries and the United States.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4333 Improving Democracy (S)
Description: This course encourages students to think critically and creatively about challenges facing political institutions in democratic countries, such as the United States and/or abroad, and the prospects for more robust democracy in the future. Topics may include the foundational principles of democracy, new research on threats to democracy, prominent democratic reform proposals, and evidence of their merits.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Society & Human Behavior

POLS 4353 Administrative Law
Description: Legal powers, limits, and procedures of administrative agencies with emphasis on federal and state administrative procedure acts. May not be used for degree credit with POLS 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4363 Environmental Law And Policy
Description: Statutory law, case law, and administrative practices relating to regulation of the environment including environmental impact statements, pollution, public lands, and preservation law. May not be used for degree credit with POLS 5633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4403 Urban Politics and Management
Description: Problems of governing and managing American metropolitan areas. May not be used for degree credit with POLS 5323.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4413 Government Budgeting
Description: The politics, planning and administration of government budgets. May not be used for degree credit with POLS 5320.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4453 Public Personnel Administration
Description: Problems, processes, and procedures of public personnel administration. May not be used for degree credit with POLS 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4553 American Political Thought
Description: A survey of the major developments in American political thought from the Colonial period to the present, followed by a topical analysis of important recent theoretical developments in political science.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4573 Democratic Theory
Description: Investigates the origins, development, and continuing challenges of theories of democratic government, with particular emphasis on the American political tradition. Topics include citizenship, accountability, voting and elections, federalism, and institutional design.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4593 Natural Resources and Environmental Policy
Description: Current issues in the law, politics and administration of energy, land, water, mineral and other natural resources policy with particular emphasis on relations to environmental policies and law. May not be used for degree credit with POLS 5620.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4623 Oklahoma Politics (S)
Prerequisites: POLS 1113.
Description: Introduction to Oklahoma Politics. Topics include the evolution of Oklahoma political institutions; the struggle to shape the Oklahoma political culture with special attention to the role of race and woman suffrage; political issues; the structure of Oklahoma political institutions at the state and local levels; and elections.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science
General Education and other Course Attributes: Society & Human Behavior

POLS 4653 Contemporary Political Thought
Description: An analysis of 19th and 20th century political ideas, with emphasis on the rise and fall of ideologies along side controversies over relativism, positivism, pragmatism, and resurgent religious faiths.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4670 Advanced Topics in Political Theory
Description: In-depth examination of critical topics and issues in classic, modern, or American political theory. May be repeated with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4693 Gender and Politics
Description: Changing role of women in government and politics. Voting behavior, public opinion, women in government, and the women's movement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4903 Senior Capstone Seminar
Prerequisites: Political Science major with Junior or Senior standing and completion of POLS 3103 with a grade of "C" or better.
Description: This class is intended to be the culmination of a student's undergraduate study of Political Science, emphasizing skills essential to students' future success. Students will read and discuss advanced readings in the field of political science and complete a significant empirical research project.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4963 U.S. Constitution: Civil Rights and Civil Liberties
Prerequisites: POLS 2023 or POLS 3983 recommended.
Description: Development of principles of constitutional law by the Supreme Court concerning individual and group rights, with particular emphasis on equal protection of the laws concepts in matters of race, gender, wealth, citizenship, legislative reapportionment and voting rights, government employment and affirmative action programs. Legal research techniques.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4973 U.S. Constitution: Separation of Powers
Prerequisites: POLS 2023 or POLS 3983 recommended.
Description: This course will cover the constitutional law governing the structure of the United States government, including such subjects as the power of the federal government, the separation of powers within the federal government, and the relationship between the federal government and the states (including substantive and due process rights under the Fourteenth Amendment).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4980 Advanced Topics in Public Law
Prerequisites: POLS 2023 and (POLS 3983 or POLS 3993) or consent of instructor.
Description: In-depth examination of critical topics and issues in Public Law. May be repeated with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Political Science

POLS 4990 Independent Study
Description: Application of major relevant theoretical perspectives to selected case studies of political problems and issue areas. Theories and attendant case studies selected by visiting faculty members. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Political Science

POLS 4993 Political Science Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a faculty member, with second faculty reader and oral examination. Required for graduation with departmental honors in political science.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Political Science
General Education and other Course Attributes: Honors Credit

POLS 5000 Thesis
Description: Thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Political Science

POLS 5013 Quantitative Methods
Prerequisites: POLS 5103.
Description: Required of all graduate students. Fundamental methodological issues in the scientific study of politics. Logic of science, principles of research design and computer data manipulation and analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5020 Creative Component
Description: Individually supervised research. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Political Science

POLS 5023 Foundation of Political Science
Description: Overview of the foundational works, theories and approaches that define the discipline of political science and serve as bridges across its subfields.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5030 Internship in Public Administration and Government
Description: Individually supervised internships in administrative and governmental career areas. Paper required. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Political Science

POLS 5040 Readings in Politics, Public Policy or Public Administration
Prerequisites: Consent of supervising professor.
Description: Readings in the student's major area of study. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Political Science

POLS 5100 Directed Study
Description: Directed study for master's level students. May not be used for degree credit with POLS 4100. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Political Science

POLS 5103 Research Design
Prerequisites: Graduate standing.
Description: Overview of research design, including conceptualization and operationalization, literature review, deductive and inductive theorizing, hypothesis testing, quantitative and qualitative data collection and analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5113 Seminar in Public Program Evaluation
Description: Methodology of evaluation research in public programs. Emphasis will be placed on designing and interpreting evaluative studies rather than the mastery of particular mathematical, statistical or computer skills.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5133 Politics and Political Economy in the European Union
Description: The institutions and policy-making process of the European Union (EU) and the theoretical traditions in the study of European integration. The institutional form of the EU and the type of European policy that is emerging.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5143 Social and Political Perspectives in Europe
Description: Examination of the current and historical social, cultural and political landscapes of European societies. Material related to identity politics, citizenship, democratization and collective memory feature regularly in the course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5153 American Foreign Policy
Description: An introduction to the history of America's foreign policy (with an emphasis on foreign relations since WWII), the dominant themes and goals of American foreign policy throughout time, contemporary issues that face the United States, and how foreign policy is made and enforced. May not be used for degree credit with POLS 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5163 International Organization
Description: The last one hundred years have seen the rise of international organizations. This class explores the reasons for this proliferation, as well as the impact of organizations such as the United Nations, North Atlantic Treaty Organization, etc. for the conduct of international relations. May not be used for degree credit with POLS 4113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5203 ProSeminar in International Relations
Description: A general survey intended to introduce students to major theoretical paradigms, applications, and debates in the field of international relations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5210 Topics Seminar in International Relations
Description: In-depth examination of critical topics and issues in International Relations. May be repeated up to 6 hours with different topics. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours. May not be used for degree credit with POLS 4010.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5213 Seminar in the International Political Economy
Prerequisites: Graduate standing.
Description: Research on the mechanics and theories of interaction between economic and political phenomena. Same course as INTL 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5223 Security Analysis and Briefing
Description: The purpose of this course is to provide students with the basic tools used by intelligence analysis. In the course, we will discuss the psychology of intelligence, how to nurture analytical creativity, methods of intelligence analysis, and ways that analysts present their findings to the consumer. We will also engage in several exercises involving both hypothetical and real-world problems that will allow you to develop your critical thinking skills. Finally, we will create an intelligence product that brings together all the skills learned in the course. May not be used for degree credit with POLS 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5253 Conflict Management and Peacebuilding
Description: An introduction to the tactics, strategies, and tools of conflict management. Student will engage with current research in this field, with a focus on understanding of what works - and what does not - in resolving civil wars and communal violence.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5273 Diplomacy
Description: Overview of the theoretical and practical dimensions of diplomacy. This class explores the history of diplomacy, its place within the study of international relations, the rise of diplomatic norms, the evolution of diplomacy, and the fragility and art of negotiation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5313 Public Management
Description: Introduction to the general principles of management as they are applied in the public sector. Systems theory, organization design, and techniques of supervision.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5320 Seminar in Public Budgeting and Finance
Description: Major processes and practices involved in governmental budgeting in the United States at national, state and local level. May not be used for degree credit with POLS 4413. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5323 Urban Politics and Management
Description: Introduction to the concepts, processes and techniques of managing urban political systems to include problems of leadership, decision-making, general management and group behavior. May not be used for degree credit with POLS 4403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5333 Seminar in Public Personnel Administration
Description: Current practices, problems and issues in public sector personnel administration, including merit system, civil service reform collective bargaining, and equal opportunity and affirmative action. May not be used for degree credit with POLS 4453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5353 Seminar in Design, Structure and Processes of Public Organizations
Description: Administration in the public sector, stressing traditional and emerging organization structures. Awareness of administrative processes and environment that include program design, implementation, and administrative accountability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5363 Public Sector Dispute Resolution
Prerequisites: Senior or graduate standing.
Description: Labor relations and employment issues in the public sector, and the various methods for resolving government personnel conflicts without resort to violence or litigation. Focus on labor law, employment law and Alternative Dispute Resolution as they apply to government employment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5393 Politics of Disaster
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5403 ProSeminar in Comparative Politics
Prerequisites: Graduate standing and 5303 or consent of instructor.
Description: Situates disaster phases in the political context at the local, national, and international levels. Examines research on specific events and their interactive effects between the political system and various phases of disaster.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5410 Topics Seminar in Comparative Politics
Description: In-depth examination of critical topics and issues in Comparative Politics. May be repeated up to 6 hours with different topics. May not be used for degree credit with POLS 4020. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Political Science

POLS 5510 Seminar in Political Behavior
Description: Examination of contemporary theories of political behavior with emphasis on empirical studies. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 3-18 Other: 3-18
Levels: Graduate
Schedule types: Independent Study
Department/School: Political Science

POLS 5513 Seminar in Political Psychology
Description: Examination of psychological theories as they pertain to political behavior, including attitude change, political cognition, public opinion and decision-making.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5613 Public Policy Analysis
Description: Analytical methods for evaluating public policies and examination of the public processes including policy design, implementation and evaluation. May not be used for degree credit with POLS 3493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5620 Seminar in Natural Resource Policy, Law and Administration
Description: Analysis of the legal and public policy aspects of environmental regulation, including special emphasis on one of three components: environmental law, administrative law, and national resource law and policy. May not be used for degree credit with POLS 4593. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5633 Practical Environmental Compliance
Description: Environmental decision-making, reading and understanding environmental statutes and regulations, and effectively dealing with the EPA. Environmental permitting and enforcement, policies and procedures. Review of hazardous waste regulations with emphasis on ground water problems. May not be used for degree credit with POLS 4363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5643 Regulatory Risk Analysis
Description: Risk-based decision making, government's risk analysis paradigm, risk analysis policy, and social aspects of risk assessment. Review of the RCRA corrective action, CERCLA (Superfund) remedial action, and NEPA environmental impact study programs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5673 Understanding and Responding to Terrorism
Description: Exploration of the experience of non-state terrorism in the U.S. and Western European democracies in the late 20th century. Understanding terrorism as a political, social, and historical phenomenon; the current and future threat of terrorism, both foreign and domestic; governmental choices in responding to terrorism in democratic societies and; U.S. anti-terrorism policies and considerations that emergency responders face in preparing for and responding to terrorist incidents.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5703 ProSeminar in American Politics
Description: Overview of a wide range of classic works in American institutions and Political Behavior. It examines not only the classic works in each area of these subfields, but a sampling of current work being done in the field.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5710 Topics Seminar in American Politics
Description: In-depth examination of critical topics and issues in American Politics. May be repeated up to 6 hours with different topics. May not be used for degree credit with POLS 4000. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5713 Seminar in Public Law
Description: Literature of public law in the United States. Overview of the approaches that shape the theoretical and empirical contours of the public law field and contribute to multidisciplinary law and social science studies. May not be used for degree credit with POLS 4353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5720 Topics in Political Science
Description: In-depth examination of critical topics and issues in Political Science. May be repeated up to 6 hours with different topics. Offered for fixed credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5743 Seminar in Political Communication
Description: Examination of recent theories within politics and the media, including effects of media on opinion, role of media as a political institution and the role of media during elections.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 5810 Seminar in Women and Politics
Prerequisites: Graduate standing.
Description: Research on a variety of topics concerning women and politics, including women's movements, women and elections, and public opinion. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Political Science

POLS 5943 Complex Emergencies
Prerequisites: Graduate Standing.
Description: This course examines complex emergencies from an emergency management perspective. We will look at the collapse of governance, the causes of armed conflict, food insecurity, infectious disease, natural disasters, and so on and examine specific cases in detail. Furthermore, we will look at how the international community responds to these crises, and which agencies are involved in relief efforts. We will apply the traditional four phases of disaster management these situations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

POLS 6000 Doctoral Dissertation Research
Prerequisites: Consent of major professor.
Description: Research for PhD dissertation. Offered for variable credit, 1-12 credit hours, maximum of 60 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Political Science

POLS 6013 Qualitative Methods
Prerequisites: POLS 5103.
Description: Qualitative methods for collecting and analyzing data from the social sciences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Political Science

Psychology (PSYC)

PSYC 1111 Succeeding in Psychology
Description: This course will serve as a practical guide to making the most of your time as a psychology major at OSU and preparing for your work life beyond OSU, whether in graduate school or a career. You will learn about: resources that are available within the Psychology Department at OSU to help you succeed, strategies to maximize your competitiveness as a potential graduate student or future employee, and steps to take as you plan for your career after graduation.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 1113 Introductory Psychology (S)
Description: Principles, theories, vocabulary and applications of the science of psychology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour, Cowboy Concur OL Res Tuition fee of $189.10 per credit hour, Individ Study Tuition and fee of $189.10 per credit hour, and STW HS Concurrent Enroll Tuit fee of $189.10 per credit hour apply.

PSYC 2313 Psychology of Adjustment
Prerequisites: PSYC 1113.
Description: This course provides an introductory examination of the applied psychological theory and research concerning mental health and well-being. Subjects include stress and coping, identity, gender, personal growth, communication, interpersonal relationships, psychological disorders and treatment, and career issues. This course was previously taught as Psychology and Human Problems.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 2443 Clinical Child Psychology
Prerequisites: PSYC 1113 with grade of "C" or better.
Description: This course will present information from empirical research, key theories, and concepts that shape the current understanding of developmental psychopathology, and clinical child and adolescent psychology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 2583 Developmental Psychology (S)
Prerequisites: PSYC 1113.
Description: The nature of pertinent studies, causes, and theories of human developmental phenomena across the life span. Course previously offered as PSYC 3583.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

PSYC 2593 Psychology of Human Sexuality
Prerequisites: PSYC 1113.
Description: Survey of behavioral, personality and psychophysiological components of human sexuality, with special emphasis on the delineation of facts from sexual myths.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 2743 Social Psychology (S)
Prerequisites: PSYC 1113.
Description: Theories and applications of social cognition, the self, pro-social and aggressive behavior, groups, attitudes and the environment. Course previously offered as PSYC 3743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

PSYC 2890 Honors Experience in Psychology
Prerequisites: Honors Program participation and concurrent enrollment in a designated PSYC course.
Description: A supplemental Honors experience in Psychology to partner concurrently with designated Psychology course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Honors Credit

PSYC 3003 Data Analysis with Observation Oriented Modeling
Prerequisites: PSYC 3214 and 3 hours MATH or STAT designated "A."
Description: Students will learn a suite of nonparametric analysis techniques (Observation Oriented Modeling) that are simple to use, easy to understand, and designed for data collected in the social and life sciences. Measurement, causal modeling, and the history of modern statistical methods of data analysis will also be covered in this course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 3013 Psychology of Motivation
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: Examines the initiation, persistence and achievement of goal-directed behavior. Theory, research and applications of these concepts are emphasized.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 3033 Psychology of Humor (S)
Prerequisites: PSYC 1113.
Description: The course will examine theoretical perspective on the topic of humor, including cross-cultural and individual a well as the development of humor.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

PSYC 3053 Psychology of Art (S)
Prerequisites: PSYC 1113.
Description: The course will examine psychological approaches to the understanding of how art is experienced and produced. The course will examine all forms of art, including visual art, music, sculpture, and other forms of artistic expression.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

PSYC 3073 Neurobiological Psychology (N)
Prerequisites: PSYC 1113.
Description: Neural bases of human experience and behavior. Topics include sensation and perception, motivation and emotion, learning and thinking.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Natural Science Reasoning

PSYC 3113 Comparative Psychology (N)
Prerequisites: PSYC 1113.
Description: Comparative study of behavior characteristics of selected samples of the animal kingdom from protozoa to humans. Topics include the history of comparative psychology, how to design a comparative experiment, and the importance of comparative psychology in our daily lives.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Natural Science Reasoning

PSYC 3120 Special Topics in Psychology
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: Special topics in psychology to be determined by faculty. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 3173 Introduction to Cognitive Science (N)
Description: Introduction to the study of human and artificial intelligence. The course will survey contributions to the understanding of intelligence from psychology, neuroscience, computer science, philosophy, and linguistics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Natural Science Reasoning

PSYC 3214 Statistical Methods in Psychology
Prerequisites: PSYC 1113, and either MATH 1483 or MATH 1513 or higher, or STAT 2013 or higher, with a grade of "C" or higher in one of the prerequisite math or statistics courses.
Description: Evaluation of research in psychology including scales of measurement and quantitative/statistical procedures for data analysis and inference. Course will cover descriptive statistics and inferential statistics with emphasis on procedures used in the psychological sciences.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Psychology

PSYC 3343 Black Psychology (DS)
Prerequisites: PSYC 1113.
Description: Students will gain an understanding of the psychology of African Americans drawing upon African and American cultures and perspectives. The course will cover the foundations of African American psychology, African philosophy, Africentric psychology, intrapersonal and interpersonal topics such as family and community, peers and friends, racial identity, and select social issues among African Americans such as physical and mental health, education, racism, and employment. Same course as AFAM 3343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Diversity, Society & Human Behavior

PSYC 3413 Social Cognition & Behavior; Mating, Morality, & other Mysteries
Prerequisites: PSYC 1113 and PSYC 2743 and 3 hours MATH or STAT designated "A."
Description: We investigate advanced topics in social psychology dealing with social cognition, perception, and interpersonal behavior (e.g., cooperation, friendship, mating aggression), with special emphasis on cutting-edge theoretical approaches and understanding the processes of critically consuming and generating social psychological research. Previously taught as Psychology of Social Behaviors.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 3443 Psychopathology (S)
Prerequisites: PSYC 1113.
Description: This course will examine the major psychological disorders, their causes, and how they are treated. The primary focus will be on the description of adult disorders and theories of etiology/treatment. Previously offered as Abnormal Psychology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

PSYC 3513 Psychology of Learning
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: Behavior change as a function of experience from relatively simple learning processes such as classical and instrumental conditioning to relatively complex processes such as verbal learning and concept identification.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 3713 Psychology of Memory
Prerequisites: PSYC 1113 and three additional hours of psychology and 3 hours MATH or STAT designated "A."
Description: An overview of scientific research on human memory including how memory operates in daily life, how memory changes as we age, why we do not remember much of our early childhood, memory disorders, and eyewitness memory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 3823 Cognitive Psychology
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: Cognitive processes. Thinking, problem solving, visual imagery, attention, and memory search. Both theory and application emphasized.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 3883 Positive Psychology
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: This course focuses on the positive side of human nature and the most effective ways to pursue the good life by examining scientific research centered on the nature of happiness and psychological well-being.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 3890 Advanced Honors Experience in PSYC
Prerequisites: Honors Program participation and concurrent enrollment in a designated PSYC course.
Description: A supplemental Honors experience in Psychology to partner concurrently with designated upper-division PSYC course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Honors Credit

PSYC 3914 Experimental Psychology: Introduction to Research Methods in Psychology
Prerequisites: PSYC 1113 and PSYC 3214 with a grade of "C" or better, and 3 hours MATH or STAT designated "A."
Description: Examination of fundamentals of the scientific method as applied to research in psychology. Research design, sampling, measurement, analytical, evaluative, and interpretive skills needed to understand the professional research literature. Includes a laboratory component in which students conduct research, use SPSS for data analysis, and write APA style papers.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Psychology

PSYC 3990 Teaching Practicum
Prerequisites: Consent of instructor.
Description: For outstanding students. Students will work with a faculty instructor and assist in many aspects of teaching including guest lecturing, offering study sessions, office hours, among other duties as determined by instructor. May involve meetings and written papers. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 4013 Introduction to Pediatric Psychology
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: Pediatric psychology is a dynamic subspecialty that involves promotion of children's health and delivery of psychological services to children with both acute and chronic illnesses. This course provides an introduction to the field of pediatric psychology, including historical perspectives, theoretical models and underpinnings, roles of the pediatric psychologist in a number of hospital and clinic settings, and psychosocial interventions with a variety of childhood chronic illnesses and diseases. In addition, this course covers the empirical knowledge base for public health, injury prevention, pain management, consultation and liaison work, as well as general assessment and intervention in medical contexts for children with a variety of health-related issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4023 Evolutionary Psychology (N)
Prerequisites: PSYC 1113
Description: Evolutionary psychology is the scientific study of human nature that focuses on understanding the psychological adaptations that evolved to solve ancestral survival and reproductive problems. The course begins with a brief historical review of key themes in psychology and evolutionary biology. The adaptive problems of survival, long-term mating, sexuality, parenting, kinship, cooperation, aggression and warfare, conflict between the sexes, status, prestige, and social dominance are covered in the course.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Natural Science Reasoning

PSYC 4073 Principles of Neuroscience
Prerequisites: BIOL 1114 or (BIOL 1113 or BIOL 1111) and either (CHEM 1215, CHEM 1314, or CHEM 1414).
Description: Neuroscience is an interdisciplinary field focused on understanding the structure and function of the brain, spinal cord, and peripheral nervous system. This course examines foundational theories and principles related to the neural mechanisms controlling physiological processes and behavior. Topics covered include cellular neurobiology, neuronal signaling, neural development and plasticity, comparative neuroanatomy, and neurobiology of complex brain functions such as sensory processing, arousal, emotions, learning, and memory. Previous coursework in physiology recommended. Same course as BIOL 4073. May not be used for degree credit with BIOL 5073 or PSYC 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4123 Psychology of Women (DS)
Prerequisites: PSYC 1113.
Description: This course examines the biological, psychological and sociocultural factors influencing behavior, cognition, and affect in the lives of women.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Diversity, Society & Human Behavior

PSYC 4143 Psychology and Law
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: The new psycho-legal literature reviewed with emphasis on the psychological basis of voir dire, eyewitness behavior, courtroom persuasion, jury deliberation and mental health issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4153 Psychology and Mass Media
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: Examination of the role of mass media in shaping public perceptions of mental illness and mental health treatment with a focus on the role of popular films. Students will learn to critically evaluate the veracity of film portrayals as well as common themes involving mental health. Also, aspects of social and cognitive psychology in film.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4163 Psychology of Prejudice and Discrimination (D)
Prerequisites: PSYC 1113.
Description: Explores the nature and causes of stereotyping, discrimination and minority experience, mainly from a social psychological perspective. Examines how these issues impact social group members, especially members of low status or minority groups.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Diversity

PSYC 4183 Issues in Clinical Psychology
Prerequisites: PSYC 1113 and three additional hours of psychology and 3 hours MATH or STAT designated "A."
Description: An in-depth look at clinical psychology including the role of science in clinical psychology, specialty areas in the discipline, and major therapy approaches. Also examines clinical psychology as a profession and applying to graduate school in clinical psychology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4213 Conflict Resolution (S)
Prerequisites: PSYC 1113.
Description: Interpersonal conflict studied from psychological perspectives. Types and uses of conflict, and conditions for constructive dispute settlement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

PSYC 4223 Decision Making and Problem Solving
Prerequisites: PSYC 1113 or consent of instructor and 3 hours MATH or STAT designated "A."
Description: An examination of the research literature on individual decision-making and problem solving with dual emphases on theory and application. A thorough prior understanding of the human cognitive system is desirable, but not required. May not be used for degree credit with PSYC 5293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4243 Psychology of Aging
Prerequisites: PSYC 1113 or consent of instructor and 3 hours MATH or STAT designated "A."
Description: This course aims to increase your understanding of the human aging process through traditional classroom experiences focusing on knowledge of the physical, cognitive, and social changes that are part of late adulthood. Additionally, students will learn more actively by working with older adults who are living in our community. Our overall goal is to enhance our understanding of the psychology of aging by integrating our classroom-acquired knowledge with our community service experiences. May not be used for degree credit with PSYC 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4263 Affective Neuroscience
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: This course will examine biological mechanisms underlying emotions. Topics include basic theories of emotion, the neural circuits associated with emotion generation, as well as related cognitive processes. May not be used for degree credit with PSYC 5663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4283 Health Psychology
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: This course will explore the interplay between psychology and health, including the psychological impact of illness, psychological contributions to illness and wellness, health behaviors, and psychological interventions to improve health and healthcare.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4293 Forensic Psychology
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: This course provides an introduction to forensic psychology, the relationship between psychology and law. The course examines five subspecialties of forensic psychology including associated careers.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4333 Personality
Prerequisites: PSYC 1113 or consent of instructor and 3 hours MATH or STAT designated "A."
Description: Basic assumptions, research, and clinical issues relating to the major personality theories. May not be used for degree credit with PSYC 5533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4343 Language Development (S)
Prerequisites: PSYC 1113 or consent of instructor.
Description: Current theory and research on the development of language throughout the lifespan. The nature of language, first language acquisition, second and third language acquisition, brain and language, language processing, social aspects of language, gender differences in language use and language processing, language use by older adults, language use directed at older adults, language disorders, and language use in special populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

PSYC 4353 History of the Human Soul
Prerequisites: 3 hours MATH or STAT designated "A."
Description: Psychology literally means the study of the soul, and in this course students will explore the history of the human soul from antiquity to modern times. Students will read selections from various literary figures, scholars, and philosophers, such as Oscar Wilde, Victor Frankl, Plato, Aristotle, and St. Thomas Aquinas. Modern psychological theories will then be explored and discussed in light of these works.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4483 Psychology of Parent Behavior (S)
Prerequisites: PSYC 1113.
Description: Historical and contemporary conceptions of parent-child relationship and approaches to communication and discipline; special problems in parenting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

PSYC 4493 History of Psychology
Prerequisites: PSYC 1113 and 3 hours MATH or STAT designated "A."
Description: History of psychology as an aspect of European intellectual history. Psychological thought from early philosophical roots to modern conceptions of psychology as a science. Topics include the contribution of under-represented groups to psychology and the role of non-European contributions to psychological thought and the solution to practical problems. May not be used for degree credit with PSYC 5493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4633 Psychology of Sport and Human Performance
Prerequisites: PSYC 1113 and 3 hours hours MATH or STAT designated "A."
Description: This course will explore psychological issues related to sport and human performance, including performance enhancement, stress and arousal, motivation, leadership, and coping with injury and retirement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4770 Undergraduate Senior Thesis
Prerequisites: PSYC 1113, PSYC 3214, PSYC 3914, junior or senior standing and consent of instructor.
Description: The thesis is an empirical study that results in a manuscript conforming to APA style. It should contain a literature review that informs specific hypothesis, as well as method, results, discussion, and reference sections. The results section of the manuscript is typically based on data collected by the student, but it is also acceptable for it to stem from an original analysis of an archival dataset. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 4813 Psychological Testing
Prerequisites: PSYC 1113 and PSYC 3214 and 3 hours MATH or STAT designated "A."
Description: Quantitative aspects of measurement and testing, with emphasis on scaling, standardization, reliability and validity. Basic principles of construction and the ethics of use.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4880 Senior Honors Thesis
Prerequisites: PSYC 1113, PSYC 3214, PSYC 3914, departmental invitation, senior standing.
Description: The thesis is an empirical study that results in a manuscript conforming to APA style. It should contain a literature review that informs specific hypothesis, as well as method, results, discussion, and reference sections. The results section of the manuscript is typically based on data collected by the student, but it is also acceptable for it to stem from an original analysis of an archival dataset. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Psychology
General Education and other Course Attributes: Honors Credit

PSYC 4883 Current Issues in Psychology
Prerequisites: PSYC 3214, PSYC 3914 and 3 hours MATH or STAT designated "A."
Description: A capstone course examining current issues in psychology, their relationship to current issues in other academic disciplines, and their relevance in an educated society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

PSYC 4990 Research Practicum
Prerequisites: PSYC 1113, PSYC 3214 and consent of instructor.
Description: Supervised research experiences in psychology with a faculty member. May involve meetings and written paper(s). Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 5000 Thesis
Description: Required of all graduate students majoring in psychology and writing a thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 5073 Principles of Neuroscience
Description: This course examines foundational theories and principles related to the neural mechanisms controlling physiological processes and behavior. Topics covered include cellular neurobiology, neuronal signaling, neural development and plasticity, comparative neuroanatomy, and neurobiology of complex brain functions such as sensory processing, arousal, emotions, learning, and memory. Previous coursework in physiology recommended. Same course as BIOL 5073 and BIOM 5983. May not be used for degree credit with BIOL 4073 or PSYC 4073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5113 Psychopathology
Prerequisites: Graduate standing in psychology or consent of instructor.
Description: Principles of diagnosis and treatment of major disorders.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5120 Psychology Workshop
Description: Provides an opportunity to study specific psychological problems, both applied and theoretical. Offered for variable credit, 2-6 credit hours, maximum of 6 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 5153 Cognitive Assessment
Prerequisites: Graduate standing in the clinical program of the Department of Psychology or consent of instructor.
Description: Issues of psychological testing and assessment, psychometric theory, and ethics of testing as well as fundamental skills of cognitive and intellectual assessment, including administration, scoring, and interpretation of cognitive tests and report writing. Application of cognitive tests to specific clinical problems.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Psychology

PSYC 5190 Ethics and Professional Development in Psychology
Prerequisites: Graduate standing in the Department of Psychology.
Description: Professional development, ethics, and legal issues relevant to teaching, research, and clinical practice of psychology. Previously offered as PSYC 5193. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5233 Introduction to Clinical Methods
Prerequisites: Consent of instructor.
Description: Introduction to a variety of topics relevant to clinical psychology training and professional development. Course will provide a foundation for subsequent training experiences. A special emphasis is placed upon developing the common therapy skills that will form a foundation for future clinical training experiences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5243 Psychology of Aging
Prerequisites: Consent of instructor.
Description: This course aims to increase your understanding of the human aging process through traditional classroom experiences focusing on knowledge of the physical, cognitive, and social changes that are part of late adulthood. Additionally, students will learn more actively by working with older adults who are living in our community. Our overall goal is to enhance our understanding of the psychology of aging by integrating our classroom-acquired knowledge with our community service experiences. May not be used for degree credit with PSYC 4243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5293 Decision Making and Problem Solving
Prerequisites: Consent of instructor.
Description: An examination of the research literature on individual decision-making and problem solving with dual emphases on theory and application. A thorough prior understanding of the human cognitive system is desirable, but not required. May not be used for degree credit with PSYC 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5304 Quantitative Methods in Psychology I
Description: Hypothesis testing, chi-square, student's t, bivariate correlation and linear regression in psychology. Critical thinking regarding the application of statistical methods is stressed. The use of contemporary statistical software for analyses is covered. Course previously offered as PSYC 5303.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Psychology

PSYC 5314 Quantitative Methods in Psychology II
Prerequisites: PSYC 5304.
Description: Higher-order analysis of variance designs, correlation and regression techniques, and analysis of covariance, with emphasis on applications to psychological experimentation. Computer applications of all procedures using SPSS and/or SAS during the lab. Course previously offered as PSYC 5313.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Psychology

PSYC 5333 Systems of Psychotherapy
Prerequisites: PSYC 5113; graduate standing in the clinical program of the Department of Psychology or consent of instructor.
Description: The major approaches to psychotherapy. Methods for creating multiple impact for behavioral change, including interpersonal, social, community and preventative interventions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5380 Research
Prerequisites: Consent of instructor.
Description: Research project on some psychological problem. Offered for variable credit, 1-12 credit hours, maximum of 24 credit hours.
Credit hours: 1-24
Contact hours: Contact: 1-24 Other: 1-24
Levels: Graduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 5493 History of Psychology
Description: History of psychology as an aspect of European intellectual history. Psychological thought from early philosophical roots to modern conceptions of psychology as a science. Topics include the contribution of under-represented groups to psychology and the role of non-European contributions to psychological thought and the solution to practical problems. May not be used for degree credit with PSYC 4493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5533 Personality
Prerequisites: Consent of instructor.
Description: Basic assumptions, research, and clinical issues relating to the major personality theories. May not be used for degree credit with PSYC 4333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5620 Seminar in Psychology
Prerequisites: Consent of instructor.
Description: Consideration of special topics that are particularly timely or technical in nature. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 5660 Teaching Practicum
Prerequisites: Consent of instructor.
Description: Primarily for graduate students with well-defined new teaching responsibilities. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.
Credit hours: 1-2
Contact hours: Lecture: 1-2 Contact: 1-2
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5663 Affective Neuroscience
Description: This course will examine biological mechanisms underlying emotions. Topics include basic theories of emotion, the neural circuits associated with emotion generation, as well as related cognitive processes. May not be used for degree credit with PSYC 4263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5813 Lifespan Cognitive Developmental Psychology
Prerequisites: Consent of instructor.
Description: Examines theory and basic research related to the age-related changes in human cognition that occur for a typically developing individual during infancy, childhood, early adulthood, middle age and late adulthood.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5823 Cognitive Processes
Description: Theory and experimental research findings dealing with human thought processes from a developmental and functional standpoint.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 5913 Lifespan Social Developmental Psychology
Prerequisites: Consent of instructor.
Description: Examines theory and basic research in social, emotional, and personality development in infancy, childhood, adolescence, and adulthood.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6000 Dissertation
Description: Research and report thereon by graduate students in partial fulfillment of requirements for the Doctor of Philosophy degree. Offered for variable credit, 1-16 credit hours, maximum of 60 credit hours.
Credit hours: 1-16
Contact hours: Contact: 1-16 Other: 1-16
Levels: Graduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 6083 Principles of Evidence-Based Psychological Treatment
Prerequisites: Graduate standing in the clinical program of the Department of Psychology or consent of instructor.
Description: Principles and procedures of evidence-based psychological treatments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6133 Ethnic and Cultural Diversity in Psychotherapy
Prerequisites: Six credit hours of psychology and consent of instructor.
Description: Increasing understanding and appreciation of ethnic and cultural diversity in the psychotherapy context. Critical examination of theory and research related to psychotherapy with multicultural populations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6143 The Psychology of Substance Abuse
Prerequisites: Consent of instructor.
Description: Introduction to psychological classification of psychoactive substance (alcohol and drug) use disorders. Theory and research on psychological, biological, and environmental factors that are concomitants of substance abuse. Overview of major research techniques and treatment modalities in this area.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6173 Child Psychopathology and Treatment
Prerequisites: Graduate standing in the clinical program of the Department of Psychology, the doctorate school psychology program or the psychometry program, or consent of instructor.
Description: Theoretical positions and issues in child psychopathology. Procedures used in the treatment of psychological disorders of children.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6223 Research Design
Description: Experimental techniques in psychophysics, sensory processes, attention and perception, motivation and emotion, and learning and memory.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6233 Clinical Research Design
Prerequisites: PSYC 5304 and PSYC 5314 or consent of instructor.
Description: Methodology and research practices in clinical psychology, including experimental design, research practice, data analysis and interpretation, ethics, and dissemination of research findings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6253 Seminar in Human Development
Prerequisites: Consent of instructor.
Description: Behavioral aspects of development from the prenatal period to senescence. Normal development contrasted to exceptional development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6353 Psychology of Motivation
Description: Outline of theory and research in human and animal motivation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6393 Language Development
Description: Review of data and theories of language development. Laboratory techniques and experimental designs will also be reviewed to emphasize understanding of past and contemporary research in language.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6413 Evidence Based Assessment and Therapy
Prerequisites: Graduate standing in the clinical program of the Department of Psychology or consent of instructor.
Description: This course is designed to enhance students' historical, theoretical, empirical, and technical understanding of evidence-based psychological treatments and introduce clinical psychology graduate students to issues and skills relevant for psychodiagnostic and personality assessment. The scope of this course will be limited to assessments and treatments typically delivered to adults seen in an outpatient setting, as well as the historical context of assessment and psychological treatment, research evidence, and descriptions and demonstrations of techniques. No credit for PSYC 6083 or PSYC 6753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6443 Behavioral Medicine
Prerequisites: Graduate standing in the clinical program of the Department of Psychology; consent of instructor.
Description: An advanced graduate course for students in training for a PhD in clinical psychology. General considerations for psychophysiological disorders, general intervention strategies in behavioral medicine, including biofeedback and specific consideration and intervention strategies for specific disorders.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6453 Pediatric Psychology
Prerequisites: Graduate standing in the Department of Psychology; consent of instructor.
Description: Overview of the field of pediatric psychology, including historical perspectives, theoretical underpinnings, and application to a variety of child health problems. Childhood chronic illness, injury prevention, pain management, and consultation and intervention in medical contexts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6483 Neurobiological Psychology
Prerequisites: PSYC 3073 and PSYC 3914 or consent of instructor.
Description: Physiological, neuroanatomical, and neurochemical underpinnings of human behavior. Emphasis on effects of central nervous system dysfunctions on behavioral processes ranging from sensation to concept formation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6523 Family Treatment Methods
Prerequisites: Graduate standing in the clinical program of the Department of Psychology or the doctorate counseling psychology program.
Description: Introduction to techniques and philosophies of family treatment. Includes marital counseling and emphasis on family dynamics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6543 Stereotyping, Prejudice, and Discrimination in Social Cognition
Prerequisites: Consent of Instructor.
Description: In this course we will investigate the social and cognitive processes and implications of stereotyping, prejudice, and discrimination (SPD). We will consider such questions as: What are the psychological and material costs of SPD - both for targets and those who hold them? Where do our stereotypes and prejudices come from, and what functions might they serve? How do perceptions, attention, and memory shape - and get shaped by - SPD?
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6563 Advanced Social Psychology
Description: History, theory and experimentation of dynamic interaction of group membership and individual behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6583 Developmental Psychobiology
Prerequisites: Consent of instructor.
Description: An exploration of the biological aspects of human development with particular emphasis on the physiological, ethological, and genetic perspectives.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6593 Evolutionary Social Science
Prerequisites: Consent of Instructor.
Description: Evolutionary social science (ESS) is an interdisciplinary topic. This course will introduce you to ESS, which includes evolutionary psychology, human behavioral ecology, and cultural evolution. The course goal is to introduce you to evolutionary approaches to investigating human social cognition and behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6613 Experimental Learning Theories
Prerequisites: Nine credit hours of psychology.
Description: Basic concepts and empirical findings in animal and human learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6640 Clinical Practicum
Prerequisites: Graduate standing in the clinical program of the Department of Psychology.
Description: Practicum experience for graduate students in the clinical psychology program. Offered for variable credit, 1-12 credit hours, maximum of 17 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 6643 Psychopharmacology
Prerequisites: Consent of instructor.
Description: A comprehensive course dealing with the various classes of drugs that affect the central nervous system. Primary focus is on clinical research with humans. Covers topics ranging from drug-receptor interactions through substance abuse and behavioral disorders.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6650 Practicum
Prerequisites: Graduate standing in the clinical program of the Department of Psychology.
Description: For the marriage and family practicum only, doctoral level counseling psychology students may also enroll. Practicum experience for graduate students in the clinical program of the Department of Psychology who are doing supervised practicum in specific clinical areas of specialization. Offered for variable credit, 1-16 credit hours, maximum of 16 credit hours.
Credit hours: 1-16
Contact hours: Contact: 1-16 Other: 1-16
Levels: Graduate
Schedule types: Independent Study
Department/School: Psychology

PSYC 6723 Child Diagnostic Methods
Prerequisites: PSYC 5153, graduate standing in the clinical program in psychology or the doctoral school psychology program or consent of instructor.
Description: Administration and interpretation of diagnostic instruments used specifically with children.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6753 Assessment of Personality
Prerequisites: Graduate standing in the clinical program or consent of instructor.
Description: Personality assessment and training in the practice of clinical assessment. Trait theory and assessment, techniques of test construction, contemporary assessment techniques including the MMPI-2, test result interpretation and communication, and behavioral methods of assessment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6813 Multivariate Statistics for Psychology
Prerequisites: PSYC 5304 and 5314 or permission of instructor.
Description: A variety of multivariate statistical methods are covered with emphasis on their application to psychological research. Factor analysis, MANOVA, CANONA, Generalized Procrustes Analysis, as well as other topics are covered. Matrix algebra is also reviewed, and the geometric approach to multivariate statistics is introduced.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6913 Multilevel Modeling in Psychology
Prerequisites: PSYC 5304 and 5314; or permission of instructor.
Description: Trains students in the theory and application of multilevel models for nested and repeated measures data in psychology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

PSYC 6990 Advanced Internship in Clinical Psychology
Description: Graduate standing in the clinical psychology program or consent of instructor. Designed to provide advanced clinical training in preparation for receipt of the Ph.D. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Psychology

Public Safety (PSAF)

PSAF 4010 Special Topics in Public Safety
Description: This course introduces students to advanced issues and topics related to public safety/law enforcement and provides and analysis of a contemporary topic to enhance understanding of public safety and law enforcement issues. Offered for variable credit, 1-15 credit hours, maximum of 15 credit hours.
Credit hours: 1-15
Contact hours: Lecture: 1-15 Contact: 1-15
Levels: Undergraduate
Schedule types: Lecture
Department/School: Professional Studies

Recreation Management & Recreational Therapy (RMRT)

RMRT 5000 Master's Thesis
Prerequisites: Consent of major professor.
Description: Research in Recreation Management and/or Recreational Therapy for master's degree. Previously offered as LEIS 5000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 5010 Directed Study in Recreation Management
Prerequisites: Permission of Instructor.
Description: Directed study within recreation management. Previously offered as LEIS 5010. Offered for variable credit, 1-3 credit hours, maximum of 20 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 5013 Recreation and a Technologically Advanced Society
Description: Investigate the recreational needs of modern society locally and globally. Consider new methods of recreation participation and communicating recreation information to target populations and devise strategies to implement these methods. Utilize modern tools to incorporate recreation activities into participants' lives. May not be used for degree credit with RMRT 4013 or RM 4013. Previously offered as LEIS 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5020 Workshop in Recreation Management
Prerequisites: Consent of instructor.
Description: Advanced instruction on specialized topic areas in recreation management. Previously offered as LEIS 5020. Offered for variable credit, 1-6 credit hours, maximum of 20 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 5023 Legal Aspects of Recreation Management, Health, Physical Education, and Leisure Services
Description: The application and interpretation of the law as it applies to teachers, coaches and administrators of recreation management, health, physical education, and leisure services programs. Course previously offered as HHP 5023 and LEIS 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5030 Field Problems in Recreation Management
Prerequisites: Consent of instructor.
Description: Applied research within the practice of recreation management. Previously offered as LEIS 5030. Offered for variable credit, 1-6 credit hours, maximum of 20 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 5033 Recreation Specialization and Serious Leisure
Description: The Serious Leisure Theory focuses on leisure participation in which a persons is highly concentrated on one pursuit. This course investigates the details of the theory, how this theory can be observed in participants, and how to facilitate recreation and leisure programs to fulfill the needs of those engaged in Serious Leisure pursuits. May not be used for degree credit with RMRT 4023 or RM 4023. Previously offered as LEIS 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5073 Recreational Therapy and Geriatrics
Prerequisites: LEIS 2433 or consent of instructor.
Description: Role of Recreational Therapists (RT) working with geriatric population. Topics include terminology, etiology, prognosis, assessment, and program development in RT. Previously offered as LEIS 5073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5110 Directed Studies in Recreational Management
Prerequisites: Consent of Instructor.
Description: Supervised readings, research or study of trends and issues related to Recreation Management. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 5113 Graduate Internship in Recreation Management
Prerequisites: Graduate student status.
Description: Supervised practical experience with leadership responsibilities for planning, leading, and evaluating activities and programs. Previously offered as LEIS 5113.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 5120 Workshop in Recreational Therapy
Prerequisites: Consent of Instructor.
Description: Advanced instruction on specialized topic areas in recreational therapy. Offered for variable credit, 1-6 hours per semester for a maximum of 20 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 5130 Field Problems in Recreational Therapy
Description: Applied research within the practice of recreational therapy. Offered for variable credit, 1-6 credit hours, maximum of 20 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 5212 Psychomotor Development
Description: Fundamental aspects of motor development for infants, children, youth, and adults (motor development from a lifespan perspective).
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5231 Formal Report in RMRT
Prerequisites: Consent of instructor.
Description: Applied research utilized in the creation of a formal report as a culminating product of a master's program.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 5333 Introduction to Recreational Therapy
Description: Theory and application of recreation therapy with emphasis on types of illnesses and disabilities, delivery systems, and programing services.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5403 Outdoor Recreation
Prerequisites: Graduate Student Standing.
Description: Theory and practical application of outdoor recreation concepts with emphasis on programs, pursuits, philosophies, principles, policies, economics, trends and problems. Course previously offered as HPEL 5403 and LEIS 5403. May not be used for degree credit with RMTR 4473, RMRT 4473 or RM 4473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5413 Organization and Administration of Recreation and Leisure Services
Prerequisites: Graduate Student Standing.
Description: Systematic approach to problem solving and decision making for structure, personnel management, financing, and program development for recreation and leisure service delivery systems. Course previously offered as HPEL 5413 and LEIS 5413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5423 Supervision of Recreation Management People and Programs
Prerequisites: Graduate standing.
Description: Administrative supervision and leadership in Recreation Management delivery systems. An examination of theories and practices as related to personnel, participants, and facility resources. Previously offered as LEIS 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5433 Current Issues in Recreation Management
Description: Current issues related to the recreation management services profession. Investigation, discussion and analysis of contemporary issues. Previously offered as HPEL 5443 and LEIS 5433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5443 Social Foundations of Recreation Management
Prerequisites: Graduate standing.
Description: Social, psychological, philosophical and historical foundations of recreation and recreation management. The impact of social forces on recreation and leisure throughout history. Course previously offered as HPEL 5443 and LEIS 5443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5453 Recreation Management and Recreational Therapy Experiential Learning Lab
Description: Lecture, discussion, and experiential lab investigating human behaviors, thoughts, attitudes, and practices related to recreation. The understanding of the complexity of providing recreation and recreational therapy services to a variety of target populations. Previously offered as LEIS 5453.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

RMRT 5463 Issues in Recreational Therapy
Prerequisites: LEIS 2433 or professional experience in recreational therapy.
Description: Current issues in recreational therapy with emphasis on accreditation, certification, licensure, quality assurance and ethics. Previously offered as LEIS 5463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5473 Recreation and Aging
Description: Overview of the recreation needs and services for older adults, with emphasis upon the delivery system and recreation activities. Course previously offered as HPEL 5473 and LEIS 5473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5483 Recreational Therapy for Persons with Physical Disabilities
Prerequisites: LEIS 2433 or professional experience in recreational therapy.
Description: The role of recreational therapy in the treatment and rehabilitation of individuals with physical disabilities. Emphasis on terminology, prognosis, etiology or specific disabilities, program development, assessment. Previously offered as LEIS 5483 and HPEL 5483.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5493 Recreational Therapy in Mental Health and Intellectual Disabilities
Prerequisites: LEIS 2433 or professional experience in recreational therapy.
Description: The role of recreational therapists (RT) in mental health or intellectual disabilities with emphasis upon client prognosis and methodologies of treatment programs. Previously offered as LEIS 5493 & HPEL 5493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5513 Recreation and Leisure Education
Description: Models of recreation leisure education discussed and practices in conjunction with enhancing student's ability with basic skills of recreation and leisure counseling to facilitate optimal recreation and leisure pursuits. May not be used for degree credit with RMTR 4513, RMRT 4513 or RM 4513. Previously offered as LEIS 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5523 Medical Terminology and Procedures for Recreational Therapy
Description: The course covers the basic knowledge for documentation including vocabulary, abbreviations, symbols, prefixes, and suffixes typically used in clinical settings in which Recreational Therapists practice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5553 Tourism in Recreation Settings
Description: Theory and foundations of the philosophy, principles and practices that associate tourism with recreation agencies and settings. May not be used for degree credit with RMTR 4553, RMRT 4553 or RM 4553. Previously offered as LEIS 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5563 Entrepreneur Recreation Management
Description: Introduction to the scope, characteristics and management aspects of the commercial recreation industry from an entrepreneurial perspective. May not be used for degree credit with RMTR 4563, RMRT 4563 or RM 4563. Previously offered as LEIS 5563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5603 Outdoor Education
Description: Development of a holistic approach to teaching and learning in the outdoors. Learning in, about, and for, the out-of-doors as a process for acquiring skills with which to enjoy outdoor pursuits. May not be used for degree credit with RMTR 4453, RMRT 4453 or RM 4453. Previously offered as LEIS 5603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5633 Assessment and Documentation in Recreational Therapy
Description: Assessments and documentation used in the Recreational Therapy field and including reviewing and practicing with various assessments, writing notes using the various forms of documentation, writing goals and objectives, and combining knowledge and skills in a comprehensive assignment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5703 Areas and Facilities in Recreation Management Services
Description: Planning, design and development of areas and facilities in recreation management service delivery systems. May not be used for degree credit with RMTR 4463, RMRT 4463 or RM 4463. Previously offered as LEIS 5703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5713 Campus Recreation, Intramurals, and Sport
Description: Program operations, industry standards, and current issues surrounding these areas of the recreation industry. May not be used for degree credit with RMRT 4713 or RM 4713. Previously offered as LEIS 5713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5833 Recreational Therapy and Pediatrics
Description: The role of Recreational Therapists in the treatment of the pediatric population (ages 0-18 years) including terminology, etiology, prognosis of specific problems, assessment, treatment, and program development in recreational therapy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5843 Facilitation Techniques and Interventions in Recreational Therapy
Description: Facilitation techniques, leadership, and interventions for the various diagnostic groupings, treatment settings, and individuals seeking assistance from a recreational therapist.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5853 Recreational Therapy and Healthcare Administration
Description: Decision making, problem solving, administrative structures, fiscal policies/procedures, and legal issues related to healthcare administration and recreational therapy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5933 Advanced Methods in Recreational Therapy
Description: Theoretical and practical examination of contemporary implementation procedures used in recreational therapy practice. May not be used for degree credit with RMRT 4933 or RT 4933. Previously offered as LEIS 5933.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 5943 Grant Writing and Nonprofit Management
Description: Methods and techniques used in grant writing as well as the establishment of a nonprofit agency. Previously offered as LEIS 5943. May not be used for degree credit with RMTR 4943, RMRT 4943 or RM 4943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 6000 Doctoral Dissertation in Recreation Management and/or Recreational Therapy
Description: Required of all candidates for the Doctor of Philosophy degree in Recreation Management. Credit is given upon completion of the dissertation. Previously offered as LEIS 6000. Offered for variable credit, 1-9 credit hours, maximum of 25 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 6010 Independent Study in Recreation Management
Prerequisites: Consent of instructor.
Description: Supervised readings, research or study of trends and issues related to recreation management studies. Offered for variable credit, 1-3 credit hours, maximum of 20 credit hours. Previously offered as LEIS 6010.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 6013 Ethical and Professional Issues in RMRT Higher Education
Description: Introduction to higher education issues relevant to professional preparation in recreation management and recreational therapy curricula, including roles of the educator, curriculum development, implementation and management, instructional strategies and accreditation. Previously offered as LEIS 6013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 6020 Recreation Management Research Colloquium
Prerequisites: Graduate student standing.
Description: Exploration and presentation of selected topics and research in recreation management studies. Previously offered as LEIS 3020. Offered for variable credit, 1-3 credit hours, maximum of 20 credit hours. Previously offered as LEIS 6020.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 6023 Special Topics in Recreation
Prerequisites: Admission to the Graduate College.
Description: Special topics related to recreation, recreational therapy and leisure services. Investigation, discussion and analysis of contemporary topics. Previously offered as LEIS 6023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 6110 Independent Study in Recreational Therapy
Prerequisites: Consent of Instructor.
Description: Supervised readings, research or study of trends and issues related to recreational therapy studies. Offered for variable credit, 1-3 credit hours, maximum of 20 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 6120 Recreational Therapy Research Colloquium
Prerequisites: Consent of instructor
Description: Exploration and presentation of selected topics and research in recreational therapy studies. Offered for variable credit, 1-3 credit hours, maximum of 20 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RMRT 6123 Curriculum Development in Kinesiology, Applied Health and Recreation
Description: Identification and analysis of curriculum theories, approaches to traditional and innovative curriculum development, and relating curriculum development to accreditations with the fields of Kinesiology, Applied Health, and Recreation. Same course as HHP 5723 and HHP 6723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 6223 Graduate Writings in RMRT
Description: This course will address writing types involving theory, case reports, and manuscript preparation types in Recreation Management and Recreational Therapy.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 6323 Graduate Readings in Recreation Management and Recreational Therapy
Description: A survey of professional literature in the Recreation Management and Recreational Therapy fields and applying that to current research topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 6453 Recreation Management and Recreational Therapy Behavior
Description: The advanced study of recreation and human behavior. Research related to the understanding of how and why humans engage in recreation, leisure, and play. Previously offered as LEIS 6453.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 6723 Curriculum Development in Recreation Management, Recreational Therapy, and HHP
Description: Historical, philosophical, and psychological examination of curriculum development, theories, trends, and structure. Identification and analysis of curriculum theory provides an emphasis on traditional and innovative approaches to curriculum development in recreation management, recreational therapy, kinesiology, health, and human performance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RMRT 6763 Management in Health, Human Performance, and Recreation Management & Recreational Therapy Setting
Prerequisites: Admission to the Graduate College.
Description: Essential elements of organizational structures, management issues, functions and styles in public, non-profit and private settings in health, human performance, and recreation management & recreational therapy. Course previously offered as HHP 5763, HPEL 5763 and LEIS 6763.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

Recreation Management (RM)

RM 2403 Recreation and Society (G)
Description: Exploration of the influence of recreation and leisure culture internationally to understand how society's view impacts individuals, families & communities, simultaneously. Students will engage multiple resources (readings, meetings, site visits, multidisciplinary discussions, critical reflections through written & video production) on the ways recreation and leisure practices are internationally influenced by economic, political & social drivers. Prev. offered as RMTR 2403 & RMRT 2403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: International Dimension

RM 2413 Introduction to Recreation Management
Description: The nature, scope and significance of recreation and leisure. Delivery systems for recreation, major program areas, and the interrelationship of special agencies and institutions serving the recreation needs of society. Introducing the history, philosophies, and theories related to Recreation Management. Previously offered as RMTR 2413 and RMRT 2413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 2463 Recreation Management and Recreational Therapy Laboratory
Description: Lecture, discussion and experiential learning of recreation and recreational therapy activities. Adapted activities, small and large group games, sports, arts and crafts, music, dance, drama, outdoor, aquatics, wellness, and cultural activities are included. Students also learn to determine what activities to select for various target populations. Previously offered as RMTR 2463 and RMRT 2463.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

RM 2473 Foundation of Recreation Management Leadership
Description: Introduction to the principles and practical applications of group leadership techniques, problem solving, supervision of personnel and participants in recreation services and settings. Previously offered as RMTR 2473 and RMRT 2473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 3010 Workshop in Recreation Management
Prerequisites: Instructor Permission.
Description: Intensive training program on a specialized topic in Recreation Services. Previously offered as RMTR 3010 and RMRT 3010. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RM 3212 Lifeguard Training
Description: Theory and practice of water safety and rescue skills essential for lifeguards. May obtain American Red Cross Lifeguard Training Certification. Previously offered as RMTR 3212 and RMRT 3212.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 3313 Camp Operations and Programs
Description: Operations and programming for day and resident camps. Includes all camp settings and camper populations. Previously offered as RMTR 3313 and RMRT 3313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 3463 Recreation Program and Event Planning
Prerequisites: RM 2413 and RM 2463.
Description: Emphasis on planning, organization, supervision, promotion and evaluation of recreation programs and special events. Previously offered as RMTR 3463 and RMRT 3463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 3483 Jr. Internship in Recreation Management
Prerequisites: RM 2413 and RM 2463.
Description: Supervised practical experience with leadership responsibilities for planning, leading, and evaluating recreation activities and programs. Graded on pass-fail basis. Previously offered as RMRT 3483.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RM 4010 Directed Studies in Recreation and Athletic Management
Prerequisites: Consent of instructor.
Description: Supervised readings, research or study of trends and issues related to Recreation and Athletic Management. Previously offered as RMRT 4010 and RMTR 4010. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RM 4013 Recreation and a Technologically Advanced Society
Prerequisites: RM 2413 and RM 2463.
Description: Investigate the recreational needs of modern society locally and globally. Consider new methods of recreation participation and communicating recreation information to target populations and devise strategies to implement these methods. Utilize modern tools to incorporate recreation activities into participants' lives. Previously offered as RMRT 4013. May not be used for degree credit with LEIS 5013 or RMRT 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4023 Recreation Specialization and Serious Leisure
Prerequisites: RM 2413 and RM 2463.
Description: The Serious Leisure Theory focuses on leisure participation in which a person is highly concentrated on one pursuit. This course investigates the details of the theory, how this theory can be observed in participants, and how to facilitate recreation and leisure programs to fulfill the needs of those engaged in Serious Leisure pursuits. Previously offered as RMRT 4023. May not be used for degree credit with LEIS 5033 or RMRT 5033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4213 Water Safety Instructorship
Description: Methods of teaching swimming and aquatic safety with practical application of knowledge, principles and analysis of skills. May obtain American Red Cross Water Safety Instructor's Certification (WSI). Previously offered as RMTR 4213 and RMRT 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4433 Evaluation in Recreation Management Services
Description: Methods, techniques and application of the evaluation process related to a wide variety of recreation management functions: participant, programs, personnel, facilities and organization. Previously offered as RMTR 4433 and RMRT 4433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4453 Outdoor Education and Interpretation
Description: Development of a holistic approach to teaching and learning in the outdoors. Learning in, about, and for, the out-of-doors as a process for acquiring skills with which to enjoy outdoor pursuits. Previously offered as RMTR 4453 and RMRT 4453. May not be used for degree credit with LEIS 5603 or RMRT 5603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4463 Areas and Facilities in Recreation Management
Prerequisites: RM 3463 or consent of instructor.
Description: Planning, design and development of areas and facilities in recreation service delivery systems. Previously offered as RMTR 4463 an RMRT 4463. May not be used for degree credit with LEIS 5703 or RMRT 5703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4473 Recreation in the Natural Environment
Description: Theory and practical application of outdoor recreation concepts with emphasis on philosophies, principles, policies, economics, trends and problems. Previously offered as RMTR 4473 and RMRT 4473. May not be used for degree credit with LEIS 5403 or RMRT 5403.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4481 Senior Seminar in Recreation Management
Prerequisites: RMRT major and completion of a minimum of 15 hours of Recreation Management core or Instructor Permission.
Description: Culmination of course work in Recreation Management. Examine professional practices and philosophies. Previously offered as RMTR 4481 and RMRT 4481.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4493 Administration of Recreation Services
Description: Decision-making, problem solving, personnel policies, legal issues, fiscal policies and budget procedures related to the delivery of recreation services. Previously offered as RMTR 4493 and RMRT 4493.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4513 Recreation and Leisure Education
Prerequisites: RM 2463 and RM 3463.
Description: Models of recreation and leisure education discussed and practices in conjunction with enhancing student's ability with basic skills in facilitating optimal recreation pursuits. Previously offered as RMTR 4513 and RMRT 4513. May not be used for degree credit with LEIS 5513 or RMRT 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4553 Tourism in Recreation Settings
Description: Theory and foundations of the philosophy, principles and practices that associate tourism with recreation agencies and settings. Previously offered as RMTR 4553 and RMRT 4553. May not be used for degree credit with LEIS 5553 or RMRT 5553.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4563 Entrepreneurial Recreation Management
Prerequisites: RM 3463 or consent of instructor.
Description: Introduction to the scope, characteristics and management aspects of the commercial recreation industry from an entrepreneurial perspective. Previously offered as RMTR 4563 and RMRT 4563. May not be used for degree credit with LEIS 5563 or RMRT 5563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4683 Administrative Documentation in Internship for Recreation Management
Prerequisites: Last semester senior year with cumulative GPA of 2.5, RM 4481 and co-requisite of RM 4680.
Description: Assignment based course that complements RM 4680 Internship in Recreation Management. Must be taken concurrently with RM 4680. Previously offered as RMTR 4683 and RMRT 4683.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RM 4689 Senior Internship in Recreation and Athletic Management
Prerequisites: Last semester senior year with cumulative GPA of 2.5, RM 4481 and co-requisite of RM 4683.
Description: Supervised field work experience in Recreation and Athletic Management. Graded on a pass-fail basis. Must be taken concurrently with RM 4683. Same course as RM 4680.
Credit hours: 9
Contact hours: Contact: 9 Other: 9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RM 4713 Campus Recreation, Intramurals, and Sport
Description: Program operations, industry standards, and current issues surrounding these areas of the recreation industry. May not be used for degree credit with LEIS 5713 or RMRT 5713. Previously offered as RMRT 4713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RM 4943 Grant Writing and Nonprofit Management
Prerequisites: RM 2413 and RM 2463 or consent of instructor.
Description: Methods and techniques used in grant writing as well as the establishment of a nonprofit agency. Previously offered as RMTR 4943 and RMRT 4943. May not be used for degree credit with LEIS 5943 or RMRT 5943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

Recreational Therapy (RT)

RT 2433 Introduction to Recreational Therapy
Description: Theory and application of recreational therapy with emphasis on types of illnesses and disabilities, delivery systems, programming services. Previously offered as RMTR 2433 and RMRT 2433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 2443 Contemporary Issues in Diversity (DS)
Description: Exploration of the primary and secondary dimensions of diversity and their impact on society. Individual and institutional responses to cultural diversity. Previously offered as EDUC 2443, LEIS 2443, RMTR 2443, and RMRT 2443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec
General Education and other Course Attributes: Diversity, Society & Human Behavior

RT 2463 Recreational Therapy Experiential Laboratory
Description: Lecture, discussion, and experiential learning of recreation and recreational therapy activities. Adapted activities, small and large group games, sports, arts and crafts, music, dance, drama, outdoor, aquatics, wellness, and cultural activities are included. Students also learn to determine what activities to select for various target populations. Same course as RM 2463.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

RT 3110 Workshop in Recreational Therapy
Description: Intensive training program on a specialized topic in recreational therapy. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RT 3212 Psychomotor Development
Description: Fundamental aspects of motor development for infants, children, youth and adults. Course previously offered as RT 3213, PE 2712 and HHP 2712.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 3413 Recreational Therapy and Mental Illness/Intellectual Disabilities
Prerequisites: RT 2433.
Description: The role of Recreational Therapists (RT) working with individuals diagnosed with mental illness and/or intellectual disabilities. Topics include terminology, etiology, prognosis, assessment, and program development in RT. Previously offered as RMTR 3413 and RMRT 3413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 3423 Recreational Therapy in Geriatric Practices
Prerequisites: RT 2433.
Description: The role of Recreational Therapists (RT) working with the geriatric population. Topics include terminology, etiology, prognosis, assessment, and program development in RT. Previously offered as RMTR 3423 and RMRT 3423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 3433 Recreational Therapy and Physical Disabilities
Prerequisites: RT 2433.
Description: The role of Recreational Therapists in the rehabilitation of individuals with physical disabilities. Topics include terminology, etiology, prognosis of specific problems, assessment, and program development in RT. Previously offered as RMTR 3433 and RMRT 3433.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 3441 Warm Water Therapy Lab
Description: This aquatic lab course is designed to give students valuable hands-on experience with participants with disorders ranging from pre-school through senior citizen population. Previously offered as RMTR 3441 and RMRT 3441.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Kinesiology, Appl Health, Rec

RT 3443 Assessment in Recreational Therapy
Prerequisites: RT 2433 or Instructor Permission.
Description: Assessments and documentation used in the Recreational Therapy field and including reviewing and practicing with various assessments, writing notes using the various forms of documentation, writing goals and objectives, and combining knowledge and skills in a comprehensive assignment. Previously offered as RMRT 3443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 3473 Medical Terminology and Procedures for Recreational Therapy
Description: The course covers the basic knowledge documentation including vocabulary, abbreviations, symbols, prefixes, and suffixes typically used in clinical settings in which Recreational Therapists practice. Taken concurrently with Junior Internship Courses. Previously offered as RMTR 3473 & RMRT 3473.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 3483 Junior Internship in Recreation Therapy
Prerequisites: RM 2413, RM 2473, RT 3441, and concurrent enrollment in RT 3473 and one course in emphasis areas of study (Recreational Therapy or Leisure Service Management).
Description: Supervised practical experience (minimum 200 contact hours) with leadership responsibilities for planning, conducting and evaluating activities and programs. Previously offered as RMTR 3480, RMRT 3480 and RT 3480. Graded on a pass-fail basis.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RT 3843 Recreational Therapy Facilitation Techniques & Interventions
Description: Facilitation techniques, leadership, and interventions for the various diagnostic groupings, treatment settings, and individuals seeking assistance from a recreational therapist. Previously offered as RMRT 3843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 4110 Directed Studies in Recreational Therapy
Description: Supervised readings, research or study of trends and issues related to recreational therapy studies. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RT 4442 Recreational Therapy and Child Development
Description: This applied learning course will provide students with the opportunity to utilize the recreational therapy process with young children. Through clinical supervision, students will implement assessment, planning, implementation, evaluation, and documentation of recreational therapy interventions with young children. Previously offered as RT 4443.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Kinesiology, Appl Health, Rec

RT 4483 Administrative Documentation in Internship for Recreational Therapy
Prerequisites: Last semester senior year with cumulative GPA of 2.5 and RT 3480, RM 4481 and co-requisite of RT 4480.
Description: Assignment based course that complements RT 4480 Internship in recreational therapy. Must be taken concurrently with RT 4480. Previously offered as RMTR 4483 and RMRT 4483.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RT 4489 Senior Internship in Recreational Therapy
Prerequisites: Last semester senior year with cumulative GPA of 2.5 and completion of RT 3483, RM 4481 and co-requisite of RT 4483.
Description: Supervised fieldwork experience in recreational therapy. Graded on a pass-fail basis. Must be taken concurrently with RT 4483. Same course as RT 4480.
Credit hours: 9
Contact hours: Contact: 9 Other: 9
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Kinesiology, Appl Health, Rec

RT 4581 Senior Seminar in Recreational Therapy
Prerequisites: RT 2433 or Instructor Permission.
Description: Culminating course work in Recreational Therapy examining current issues, professional practices, and professional philosophy. Previously offered as RMRT 4581.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 4833 Recreational Therapy and Pediatrics
Prerequisites: RT 2433 or Instructor Permission.
Description: The role of Recreational Therapists in the treatment of the pediatric population (ages 0-18 years) including terminology, etiology, prognosis of specific problems, assessment, treatment, and program development in recreational therapy. Previously offered as RMRT 4833.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 4843 Recreational Therapy & Healthcare Administration
Description: Decision making, problem solving, administrative structures, fiscal policies/procedures, and legal issues related to healthcare administration and recreational therapy. Previously offered as RMRT 4843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

RT 4933 Advanced Methods In Recreational Therapy
Prerequisites: RM 3483 and consent of instructor.
Description: Theoretical and practical examination of contemporary implementation procedures used in recreational therapy practice. Previously offered as RMTR 4933 and RMRT 4933. May not be used for degree credit with LEIS 5933 or RMRT 5933.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Kinesiology, Appl Health, Rec

Religious Studies (REL)

REL 1103 Introduction to World Religions (GH)
Description: Major world religions such as Hinduism, Buddhism, Judaism, Christianity and Islam with a view to understanding the general nature of religion and its various dimensions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

REL 2013 The Old Testament and its Study (H)
Description: A study of the Old Testament with emphasis upon content, historical background, the history of its study and the critical analysis and interpretation of selected passages. Previously offered as REL 3013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 2023 The New Testament and Its Study (H)
Description: A study of the writings of the New Testament in their historical contexts and the methods used in their study. Emphasis interpreting selected New Testament passages. Previously offered as REL 3023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 2113 Religion in Film (H)
Description: This course will examine how religious beliefs, practices, experiences and communities have been portrayed in film. Students will explore how film has used allegory, symbolism and other tropes to represent different religious traditions and their systems of beliefs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 2213 Ghosts, Gods, and Monsters (H)
Description: Ghosts, Gods and Monsters all have something in common. They are not just an element of a given culture, but is a cipher for, or boundary markers for what is sacred and profane, monstrous and heroic, or life and death. And while all three can be found across history (depending on the lens used), how they are understood and what purposes they serve, changes depending on the time and place.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 2313 Religious Violence, Wild Weather, and Ancient Prophecy (H)
Description: This course will introduce students to religions that were in existence during ancient times. The course will focus on religions that have had an impact on cultures that may now be extinct as well as religions that developed into modern systems of belief. Students will read primary sources indigenous to these religions. We will explore aspects of religions that include violence, weather phenomena and mythology and prophetic ideas.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 2413 Religion and the Body: Sports, Medicine and Sexuality (H)
Description: This course will explore the role of religious beliefs and practices as they relate to sports, medicine and sexuality. Topics will include the cultural influence of religion on sports, religiously-informed debates within the field of medicine, and conceptions of sexuality and gender from the perspective of various Eastern and Western religious traditions. More generally, this course will explore how different world religions view the human body.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 2593 Mystics & Skeptics (H)
Description: This course will explore the complex relationship between mysticism, skepticism, and philosophy. Our exploration of these themes will take us into some classic epistemological problems regarding the limits of reason, and the implications of these limitations for religious faith. Other topics include: theological predication, the problem of divine hiddenness, and religious diversity. Same course as PHIL 2593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 2743 Religious Perspectives on Food and Agriculture (H)
Description: The goal of this course is to understand the interconnected history of agriculture, food, and religion. We will explore related ancient religions and mythologies, the pastoral roots of many world religions, dietary rules in different religions, as well as contemporary ethical issues as seen through the lens of religion. Previously offered as REL 3743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 2890 Honors Experience in Religious Studies
Prerequisites: Honors Program participation and concurrent enrollment in REL 1103.
Description: A supplemental Honors experience in Religious Studies to partner concurrently with Religious Studies course REL 1103, Introduction to World Religions. This course adds a different intellectual dimension to the designated course (REL 1103). Offered for a fixed, 1 credit hour. The content and theme of this 1 credit course will vary from one instructor to another but will enrich the content of REL 1103 classes.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

REL 3113 Asian Religions (GH)
Description: This course will examine the diverse histories, beliefs, and practices of major Asian religious traditions: Hinduism, Buddhism, Confucianism, Daoism, Shintoism, Shamanism, and modern-day religions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

REL 3213 Judaism: History, Culture and Beliefs (H)
Description: This course will explore the development of Judaism beginning with its roots in Ancient Israelite religion, the early biblical tradition, and moving through Assyrian and Babylonian conquests, Diaspora, Hellenistic occupation, Roman occupation, Byzantium, the Middle Ages, the Holocaust, the establishment of the state of Israel, up to present day.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 3223 Jesus: Teachings, History and Interpretation (H)
Description: This course will examine the teaching of Jesus, the historical context of the first century, and how Jesus' life and teachings have been interpreted through history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 3243 Origins of the Christian Church (H)
Description: This course will examine the letters of Paul in their historical context, focusing especially on the early Christian communities that were their audience, and how these letters helped shape beliefs and practices before Constantine made Christianity the official religion of Rome.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 3313 Islam: History, Culture and Beliefs (GH)
Description: This course will examine the history, culture and beliefs of Islam, from its seventh century origins to modern times.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

REL 3413 The Bible and Contemporary Social Issues (H)
Description: This course addresses contemporary social issues through critical engagement with Christian textual and practical traditions. We will critically analyze how various biblical passages influence public discourse, political activity, and personal moral choices on current issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 3423 Classic Christian Writings (H)
Description: A study of the primary source material from representative Christian authors scattered throughout two thousand years of church history, focusing on understanding the backgrounds from which the writings emerged, and grasping the writers' key ideas. Course previously offered as REL 4413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 3513 Religious Experience (H)
Description: This course will explore the nature of religious experience and what role it plays within different traditions. Modes of religious experience to be explored range from meditation and prayer to conversion experiences and mystical states of consciousness.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 3523 Gender and Religion Across Cultures (H)
Description: This course explores the interconnectedness of gender, religion.and culture both locally and globally. We will critically analyze how religious ideas, events, texts and traditions inform individual identities, gender discourse, gender roles, as well as issues of power, privilege and oppression within different religious communities around the world. Same course as GWST 3523 and GEOG 3523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 3543 Religion, Race and Social Justice (DH)
Description: This course examines the role of religion in the history and understanding of race, as well as how religion has been leveraged in relation to challenges of social justice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

REL 3573 The Religions of Native Americans (DH)
Description: Selected tribal worldviews, belief systems and religious ceremonies as depicted in oral traditions, songs, and literature. Emphasis on Northern and Southern Plains Indians.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

REL 3613 Global Christianity (GH)
Description: This course examines the varied expressions of the Christian tradition across the world, including Africa, Asia, Europe, the Pacific, the Caribbean, and the Americas. While there are points of continuity within and across Christian communities, we focus our attention on its contemporary international diversity, as communities across the globe interpret and practice the Christian faith as shaped by their varied geographical, historical, social, political, economic and cultural contexts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

REL 3623 Magic, Witchcraft, and the Occult (H)
Description: This course will examine the historical and cultural contexts that have shaped various portrayals of magic and witchcraft. We will consider how the supernatural worldviews underlying these portrayals related to both more traditional religious worldviews as well as the ways in which representations of the supernatural serve as vehicles for a culture's hopes and fears.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 3643 Cults, Conspiracies, and Contemporary Religious Movements (H)
Description: This course will examine recent religiously-themed cults and conspiracy theories as well as various new Christian and Non-Christian religious movements in North America, focusing on those that tend to be seen as outside mainline traditions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 3713 Religion, Culture and Society
Prerequisites: REL 1103, ANTH 2353, SOC 1113.
Description: An introduction to the scientific study of religion. Religious activity in both tribal and technological societies studied in the light of contemporary interpretations of culture and of social behavior. Same course as SOC 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

REL 4033 Religion in Early America (H)
Description: A study of religious life and its history in early America, beginning with its earliest European settlers, Native Americans, and continuing through the 1800s. Same course as HIST 4633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 4050 Studies in Religion
Description: Independent studies, seminars and courses on selected topics in religion. Offered for variable credit, 1-6 credit hours, maximum of 9 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Philosophy

REL 4113 The World of Islam: Cultural Perspectives (GH)
Description: The cultural heritage of the world of Islam explored through its expression in the art, architecture, and literature of the Muslim peoples.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

REL 4213 Understanding Global Islam (GH)
Description: A study of the history of Islam starting from Prophet Muhammad to the spread of the Islamic Empire. How Islam moved from Arabia to the world. Introduction to the Islamic divisions, where they are now, why they are similar and different in terms of laws, schools, countries, literature, sciences, Arabic script, the Shia, the Sunna, and different Islamic countries' practices. Also, debatable issues on Muslim women in American and other countries and why those are different from others.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

REL 4223 Religion and Conflict in the Middle East (GH)
Description: This course will explore the religions of the Middle East, focusing on how they have shaped the region's recent history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures, International Dimension

REL 4330 Seminar in Biblical Studies
Prerequisites: Two courses in Biblical studies.
Description: Selected topics in the academic study of the Bible. Offered for fixed credit, 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Philosophy

REL 4423 Death and the Afterlife (H)
Description: This course will explore and critically analyze the varying perspectives on death and the afterlife as seen across world religions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 4513 Literary Art in the Bible
Description: This course will explore literary devices (foreshadowing, allegory, symbolism, etc) and how they are implemented in biblical texts, The Bible will be the primary focus, but comparative texts will be used to build an understanding and recognition of literary devices. We will examine the texts and their history on their own terms, rather than promote a particular religious or non-religious viewpoint. Same course as ENGL 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

REL 4613 Women in the Bible (H)
Description: This course will examine the stories about and portrayals of women in the Bible. We will explore what the biblical authors have to say about women within their cultural contexts and how these portrayals have shaped how women are seen in Western society. By analyzing the portrayals of women in antiquity, the course will also provide conceptual tools to help students examine how gender has been understood in Western society. Same course as GWST 4613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 4723 Jerusalem: City and Symbol Across Millennia
Description: This course explores the history of Jerusalem as a city from the earliest records of its existence in the Ancient Near East to current events, as well as the meanings attached to Jerusalem as a symbol by Jews, Christians, and Muslims living around the world, from ancient scriptures to contemporary America. Same course as HIST 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy

REL 4753 Muslim-Christian Relations (H)
Description: Exploration of commonalities and differences between Christianity and Islam, and the history of cooperation and conflict between Muslims and Christians, from Arabia in Muhammad's time to worldwide in the twenty-first century. Themes include mutual understanding and misunderstanding, conversion, rulers and subjects, discrimination, and dialogue. Same course as HIST 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

REL 4923 Visions of Apocalypse: Portrayals of the End-Time in World Religions (H)
Description: This course will examine the various portrayals of the Apocalypse from many religious and folklore traditions around the world. This course will also explore various contemporary portrayals of the Apocalypse ranging from malevolent emergent artificial intelligence to the zombie virus.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Philosophy
General Education and other Course Attributes: Human Heritage & Cultures

Research (RES)

RES 5013 Principles of Writing and Evaluating Scientific Research
Description: Fundamentals of effective scientific writing. Instruction focuses on the process of writing and publishing scientific manuscripts as well as reviewing scientific research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

RES 5033 Clinical Trials
Description: Fundamentals of clinical trials, including design, conduct, analysis and interpretation fo trial results. Topics will include commonly used designs, methods for randomization, blinding and sample size determination, choice of controls, collaborative/multicenter trial requirements and operational issues.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Graduate
Schedule types: Independent Study
Department/School: Health Care Administration

RES 5052 Grant Writing
Description: Expertise to prepare, write and submit a research grant proposal. This course will assist in identifying relevant resources in order to find funding sources.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

RES 5063 Meta-Analysis and Systematic Reviews
Description: Study selection and quality assessment, effect size estimates and conversions, handling publication bias, fixed and random effects models, heterogeneity of effects, analysis of meta-analytic data, data presentation, and use of meta-analysis software.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

RES 5073 Research Compliance
Description: Fundamentals of all areas of clinical research and research compliance including clinical trials, human subject research, environmental health and safety, and other areas of research compliance administration.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Health Care Administration

Research, Evaluation, Measurement & Statistics (REMS)

REMS 5000 Master's Thesis
Prerequisites: Consent of instructor.
Description: Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

REMS 5013 Research Design and Methodology
Description: An introduction to the concepts of research design, methodology, sampling techniques, and internal/external validity and the scientific method in educational problem solving. Critical analysis of educational research studies and the writing of proposals. Previously offered as ABSE 5013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 5320 Seminar in Research, Evaluation, Measurement and Statistics
Prerequisites: Consent of instructor.
Description: In-depth exploration of contemporary problems of research, evaluation, measurement, and statistics. Previously offered as ABSE 5320. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

REMS 5330 Practicum in REMS
Description: Apply skills and concepts of educational research, evaluation, measurement and statistics (REMS) and gain professional experience in a mentored applied setting. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

REMS 5373 Educational Measurements
Description: Appropriate applications of tests in the schools. Development of teacher-made tests, selection of standardized tests, interpretation of test results, understanding of the statistics reported in testing literature, uses of test results, and recent developments in educational measurement. Previously offered as ABSE 5373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 5953 Statistical Methods in Education
Description: Statistical methods needed by conductors and consumers of research in education and the behavioral sciences. Introduction to interpretation and application of descriptive and inferential statistics. Previously offered as ABSE 5953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 5963 Computer Applications in Nonparametric Data Analyses
Description: Presents popular nonparametric statistical methods as applied to educational and behavioral research. Emphasis on conceptual, rather than mathematical development, application, use of computer for data analysis, and substantive interpretation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6000 Doctoral Dissertation
Prerequisites: Consent of instructor.
Description: Required of all candidates for doctorate in applied behavioral studies. Credit given upon completion and acceptance of dissertation. Offered for variable credit, 1-25 credit hours, maximum of 25 credit hours.
Credit hours: 1-25
Contact hours: Contact: 1-25 Other: 1-25
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

REMS 6003 Analyses of Variance
Prerequisites: Previous completion of both a graduate level introductory statistics course and research methods course are highly recommended.
Description: A thorough examination of analysis of variance procedures as they relate to principles of experimental design in education and behavioral sciences utilizing SPSS. Previously offered as ABSE 6003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6013 Multiple Regression Analysis in Behavioral Studies
Prerequisites: REMS 6003 or consent of instructor.
Description: Applications of multiple regression as a general data analysis strategy for experimental and non-experimental research in behavioral sciences. Previously offered as ABSE 6013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6023 Psychometric Theory
Prerequisites: REMS 6013 or consent of instructor.
Description: Theoretical basis for applying psychometric concepts to educational and psychological measurement. The Classical True Score model and applications to instrument development and design of studies for evaluating instrument quality. Previously offered as ABSE 6023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6033 Factor Analysis in Behavioral Research
Prerequisites: REMS 6013 or equivalent.
Description: In-depth analysis of principal components and factor analysis methods, including maximum likelihood methods. Confirmatory factor analysis methods are also introduced.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6320 Doctoral Seminar in REMS
Prerequisites: Permission of instructor.
Description: Theory and applications of selected advanced research and evaluation methods. Previously offered as REMS 6323. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

REMS 6373 Program Evaluation
Prerequisites: REMS 5013 and admission to a doctoral level program or consent of instructor.
Description: History, contexts, purposes and approaches of evaluating programs in a variety of settings. Emphasis on logic models and evaluation planning, design, data collection, analysis, reporting, and use of results. Applications include writing an evaluation plan for a real-world program. Previously offered as ABSE 6373.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6383 Program Evaluation II
Prerequisites: REMS 6373.
Description: Builds upon students' knowledge, understanding and application of program evaluation approaches and techniques. Emphasis on practical application of knowledge and standards by conducting a program evaluation for an existing program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6663 Applied Multivariate Research in Behavioral Studies
Prerequisites: REMS 6013 or consent of instructor.
Description: An overview and analysis of multivariate procedures commonly applied to educational and behavioral research. Emphasis on conceptual design and application of these procedures. Previously offered as ABSE 6663.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6673 Item Response Theory
Prerequisites: REMS 6003 and REMS 6023 or consent of instructor.
Description: Concepts, theory, and application of item response theory (IRT) in educational and psychological fields with computer applications for data analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6683 Multilevel Modeling Methods in Education
Prerequisites: REMS 5953, REMS 6003, REMS 6013 or consent of instructor.
Description: Multilevel modeling analyses relevant to research in educational and related sciences. Emphasis on practical, hands-on development, analysis, and interpretation of multilevel models.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6693 Structural Equation Modeling for Behavioral and Educational Research
Prerequisites: REMS 6003, REMS 6013, REMS 6033, and REMS 6663 or permission of instructor.
Description: Concepts, theory, and application of SEM in behavioral research with computer applications for data analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

REMS 6850 Directed Reading
Prerequisites: Consent of instructor.
Description: Directed reading for students with advanced graduate standing. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

Russian (RUSS)

RUSS 1713 Elementary Russian I (F)
Description: Understanding, speaking, reading, and writing. Method of instruction is audio-lingual. Not for native speakers per University Academic Regulation 4.9. Previously offered as RUSS 1115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

RUSS 1813 Elementary Russian II (F)
Prerequisites: RUSS 1713 or equivalent proficiency.
Description: Continuation of RUSS 1713. Not for native speakers per University Academic Regulation 4.9. Previously offered as RUSS 1225.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

RUSS 2713 Intermediate Russian I (F)
Prerequisites: RUSS 1813 or equivalent proficiency.
Description: Russian grammar, composition and conversation. Not for native speakers per University Academic Regulation 4.9. Previously offered as RUSS 2115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

RUSS 2813 Intermediate Russian II
Prerequisites: RUSS 2713 or equivalent proficiency.
Description: Continuation of RUSS 2713. Not for native speakers per University Academic Regulation 4.9. Previously offered as RUSS 2225.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

RUSS 3113 Russian Conversation
Prerequisites: RUSS 2813 or equivalent proficiency.
Description: Development of conversational skills in formal and informal Russian language; study of oral communication and idioms; vocabulary enhancement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

RUSS 3223 Russian Composition
Prerequisites: RUSS 2813 or equivalent proficiency.
Description: The development of all forms of written communication in Russian through practice in writing compositions, letters, reports, and other documents in Russian.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

RUSS 4013 Survey of Russian Literature I
Prerequisites: 20 hours of Russian or equivalent proficiency.
Description: Survey of Russian literature from its beginning to late nineteenth century with readings in Russian of representative texts. Course conducted in Russian.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

RUSS 4023 Survey of Russian Literature II
Prerequisites: 20 hours of Russian or equivalent proficiency.
Description: Survey of Russian literature from late nineteenth century to post-Soviet era with readings in Russian of representative texts. Course conducted in Russian.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

RUSS 4123 Russian Literature in Translation II
Description: Russian and Soviet literature from mid-19th century to present: Tolstoy, Chekhov, Gorky, Zamiatin, Sholokhov, Pasternak, Bunin, Solzhenitsyn, Arzhak (Daniel), Tertz (Sinyavsky), Voznesensky, and Evtushenko. Readings in English. Classes conducted in English.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

RUSS 4223 Russian Reading Skills
Prerequisites: 20 hours of Russian or equivalent proficiency.
Description: Acquisition of skills in vocabulary enrichment, stylistic analysis and advanced proficiency in reading various styles of contemporary written Russian (newspaper, political, business).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

School Psychology (SPSY)

SPSY 3423 Psychology of Learning Disorders: Characteristics, Identification, and Procedures in Public Schools
Description: Introduces evidence-based psychological and educational approaches to examining the characteristics, identification, and intervention of children with specific learning disorders. Includes typical procedures and problems teachers encounter in the public schools in a multi-disciplinary context and within a Multi-tiered System of Student Support framework.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 3433 Disruptive Behavior in Public Schools: ADHD and ODD
Description: Introduction to evidence-based psychological and educational approaches to identify characteristics of and interventions for children with disruptive behavior, particularly children with ADHD and ODD.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 3513 Behavior Management for Teachers of Diverse Learners
Description: Comprehensive and practical introduction to classroom management for diverse learners. Avoidance of behavioral problems through planning, organization and class management; group management procedures to promote positive learning environments, individualized management for specific behavior problems are addressed. Previously offered as EPSY 3513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 3523 Public School Support Specialist for Children At-Risk
Description: Focus on innovative practices, assessments, treatments, and prevention of academic and behavioral skill deficits. Students will develop skills in the areas of academic assessment, differentiated instructional techniques, intervention/treatment of learning problems, and the use of data to drive instructional decisions for enhancing student outcomes. Previously offered as EPSY 3523.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 4513 Prevention and Intervention for Violent Incidents and Emergencies in School Settings
Description: The literature and best practices for prevention and intervention for violent incidents and emergencies in school settings. Previously offered as EPSY 4513. May not be used for degree credit with SPSY 5513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5000 Master's Thesis
Prerequisites: Consent of Master's committee advisor or chair.
Description: Research in School Psychology for Masters students. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 5023 Introduction to School Psychology
Prerequisites: Admission to school psychology Ph.D. or Ed.S. Program or consent of instructor.
Description: History, role, function, and contemporary issues and problems for the school psychologist in a culturally diverse society. Course previously offered as ABSE 5023 and EPSY 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5110 Observation and Participation Field Experience for School Psychology Majors
Description: Roles and functions of school personnel, operation and procedures in public schools for school psychology majors. School observation/participation required. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lab: 2-12 Contact: 2-12
Levels: Graduate
Schedule types: Lab
Department/School: Teaching, Learning, Ed Science

SPSY 5113 Developmental Psychopathology
Prerequisites: EPSY 5103 or SPSY 5103 or equivalent; enrolled in school psychology, counseling psychology or clinical psychology program or consent of instructor.
Description: Examination of theoretical, conceptual, and empirical issues related to psychopathology in children, adolescents, and young adults. Course previously offered as EPSY 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5210 Introductory Practicum in School Psychology
Prerequisites: Good standing in School Psychology Program and consent of instructor.
Description: Exposure to roles and functions of school psychologists in public schools; supervised experience of skill development in the application of beginning fundamental school psychology services; shadowing of a broad and more complex range of psychological service delivery activities. Introduction to science-based child/learner success orientation and professional identity of school psychologists. Course previously offered as ABSE 5210 and EPSY 5210. Offered for variable credit, 2-6 credit hours, maximum of 6 credit hours.
Credit hours: 2-6
Contact hours: Contact: 2-6 Other: 2-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 5310 Practicum in Child and Adolescent Therapy
Prerequisites: Good standing in school psychology program, SPSY 6033 or equivalent, and consent of instructor.
Description: Supervised therapy experience with children, adolescents, and their parents for students in school psychology. Course previously offered as EPSY 5310. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 5320 Seminar in School Psychology
Description: Examination and analysis of current issues related to school psychology. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 5503 Crisis Intervention and Emergency Action in School Settings
Description: Current models for crisis intervention and emergency actions plans in school settings. Preparation for crisis intervention and experience in evaluating crisis and emergency action plans in schools. Previously offered as EPSY 5503.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5510 Advanced Practicum in School Psychology
Prerequisites: Good standing in school psychology program, SPSY 5210, and consent of instructor.
Description: Supervised experience in the delivery of a broad and complex range of psychological service delivery activities for school psychologists in public schools. Skill development in the application of assessment, consultation, direct interventions and use of data to inform educational decisions. Refinement of science-based child/learner success orientation and professional identify of school psychologists. Course previously offered as ABSE 5510 and EPSY 5510. Offered for variable credit, 3-9 credit hours, maximum of 9 credit hours.
Credit hours: 3-9
Contact hours: Contact: 3-9 Other: 3-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 5513 Prevention and Intervention for Violent Incidents and Emergencies in School Settings
Description: The literature and best practices for prevention and intervention for violent incidents and emergencies in school settings. May not be used for degree credit with SPSY 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5720 Workshop in School Psychology
Prerequisites: Consent of instructor.
Description: Workshop on various topics in school psychology. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 5753 Psycho-educational Assessment of Pre-School
Prerequisites: Admission to school psychology program Ph.D. or Ed.S. program or permission of instructor.
Description: Relevant issues and challenges associated with the intellectual, social and behavioral assessment of preschool children from the vantage point of recent research, discourse and policy initiatives. This course provides the link between assessment and intervention. Course previously offered as ABSE 5753 and EPSY 5753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5783 Psycho-educational Assessment of Exceptional Individuals
Prerequisites: Admission to school psychology, counseling psychology, or counseling programs or permission of instructor.
Description: Best practices in assessment, administration, and interpretation of individual tests and assessments appropriate for exceptional individuals. Training and preparation in selection, administration and interpretation of select individual tests. Course previously offered as ABSE 5783 and EPSY 5783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5793 Individual Intellectual Assessment of Children and Youth
Prerequisites: Good standing in School Psychology or counseling psychology program, or consent of instructor.
Description: Intensive study of the Wechsler Scales and other selected tests of mental ability. Emphasis and practice in administration, scoring, interpretation. Issues related to report writing and non-discriminatory assessment. Course previously offered as EPSY 5793.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5803 Advanced Cognitive Assessment and Theory
Prerequisites: SPSY 5793 or equivalent, good standing in School Psychology or Counseling Psychology program or permission of instructor.
Description: Examination and practice of contemporary intellectual theory with emphasis on Cattel-Horn-Carroll and nondiscriminatory cognitive assessment. Course previously offered as EPSY 5803.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5813 Parent and Family Intervention in School Psychology
Prerequisites: SPSY 5113.
Description: Empirically-supported, parent-implemented interventions for children and adolescents addressing a variety of home and school problems within the discipline of school psychology. Previously offered as EPSY 5813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5853 Applied Behavior Analysis
Description: Intensive study of behavior and analytical principles as they relate to the functional assessment and intervention development with an emphasis on developmental issues. Fundamental theoretical and philosophical issues, procedures and findings within applied behavior analysis in educational and related psychology specialties. Previously offered as EPSY 5853.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 5873 Applied Behavior Analysis II
Prerequisites: EPSY 5853 or SPSY 5853.
Description: A continuation of ABA I covering the Principles of Behavior Analysis as it is applied to school, agency and home settings with an emphasis on school based concerns. Systematic assessment of behavior, intervention development, implementation and evaluation as well as the integration of these components into a single model of consultation. Previously offered as EPSY 5873.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6000 Doctoral Dissertation
Prerequisites: Consent of PhD committee advisor or chair.
Description: Research in School Psychology for Doctoral students. Offered for variable credit, 1-12 credit hours, maximum of 25 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 6030 Ethics and Law in School Psychology
Prerequisites: Good standing in school psychology PhD program and consent of instructor.
Description: Ethical and legal standards relevant for psychologists including their application in schools and other settings for the practice of psychology. Previously offered as EPSY 6030. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6033 Introduction to Psychotherapy with Children and Adolescents
Prerequisites: EPSY 5113 or SPSY 5113.
Description: Development of individual and group skills in therapy with children and adolescents. Applications of theories of psychotherapy to a variety of disorders and coping skills, crisis intervention and adaptive social skills training. Previously offered as EPSY 6033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6113 Behavioral and Personality Assessment of Children and Youth
Prerequisites: SPSY 5793 or consent of instructor.
Description: Psychological assessment of social, emotional, behavioral, and personality functioning of children, youth, and young adults with major emphasis on childhood disorders. Course previously offered as ABSE 6113 and EPSY 6113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6143 Introduction to Developmental Psychopharmacology
Prerequisites: EPSY 5103 or SPSY 5113 or equivalent; admission to School Psychology; Counseling Psychology or Counseling program, or consent of instructor.
Description: Introduction to biological basis of behavior and behavior disorders. Review of the biological systems associated with psychopharmacological treatments. Major drug classes and their role in the treatment of developmental psychopathology. Previously offered as EPSY 6143.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6153 Advanced Research in School Psychology
Prerequisites: Good standing in school psychology PhD program and permission of instructor.
Description: Examination of research designs used within the social sciences with particular emphasis in the context of School Psychology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6210 Specialist Internship in School Psychology
Prerequisites: Good standing in school psychology Ed.S., program, completion of all coursework, passed comprehensive exam, and consent of school psychology faculty.
Description: Supervised capstone field experience in the public schools for specialist-level (EdS.) school psychology graduate students by certified school psychologists, or nationally certified school psychologists, or licensed health service psychologists for a maximum of 1200 hours over the course of an academic year, or half-time over the course of 2 academic years. Previously offered as EPSY 6210. Offered for variable credit, 3-12 credit hours, maximum of 12 credit hours.
Credit hours: 3-12
Contact hours: Contact: 3-12 Other: 3-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 6253 Single Case Designs in Behavior Analytic Settings
Prerequisites: Permission of Instructor or Admission into School Psychology Program.
Description: Use of single case designs in behavior analytic settings to validate treatments to increase pro-social behaviors. This includes multiple baseline, multi-element, alternating treatment, and reversal designs. Previously offered as EPSY 6253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6310 Doctoral Practicum in School Psychology
Prerequisites: Good standing in school psychology PhD program and consent of instructor.
Description: Supervised experience in the delivery of a range of advanced psychological service delivery activities for doctoral students in school psychology in various settings. Refinement and further development of skills in assessment, consultation, intervention/therapy and supervision. Previously offered as EPSY 6310. Offered for variable credit, 2-10 credit hours, maximum of 10 credit hours.
Credit hours: 2-10
Contact hours: Contact: 2-10 Other: 2-10
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 6313 Advanced Interventions for Increased Academic Achievement
Prerequisites: SPSY 5113.
Description: Advanced intervention design with an emphasis on using behavior analytic approaches to increase achievement in reading, math, and written expression. Previously offered as EPSY 6313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6333 Instructional Assessment and Consultation
Prerequisites: SPSY 5113 or equivalent. Admission to school psychology or special education programs, or consent of instructor.
Description: Development of skills in consulting with educational personnel and families regarding academic and educational functioning. Systematic curriculum-based assessment and measurement techniques as well as planning, implementing, and evaluating instructional interventions. Evaluation of the instructional environment. Previously offered as EPSY 6333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6343 Behavioral Assessment and Consultation
Prerequisites: SPSY 5113 or equivalent; admission to school psychology, clinical psychology or counseling psychology program; or consent of instructor.
Description: Development of psychological skills in systematic behavioral assessment and consultation with application to school, agency and home settings. Systematic behavioral observation, data collection and intervention design, implementation and evaluation. Previously offered as EPSY 6343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPSY 6610 Doctoral Internship in School Psychology
Prerequisites: Good standing in school psychology PhD program, completion of all coursework, comprehensive exams passed, dissertation proposed, and consent of SPSY faculty.
Description: The capstone field experience for doctoral-level (PhD) school psychology graduate students. Interns are supervised by licensed psychologists as part of the final preparation to begin a career as a professional psychologist with a specialization in school psychology. Previously offered as EPSY 6610. Offered for variable credit, 2-10 credit hours, maximum of 10 credit hours.
Credit hours: 2-10
Contact hours: Contact: 2-10 Other: 2-10
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPSY 6850 Directed Readings in School Psychology
Prerequisites: Consent of instructor.
Description: Directed readings for students in advanced standing in the school psychology program. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

Science & Math Education (SMED)

SMED 1012 Inquiry Approaches to Teaching
Prerequisites: Interest in exploring teaching as a career.
Description: Master teachers introduce students to examples of high-quality inquiry-based lessons and model the educational concepts to which they are being introduced. Students prepare and participate in the teaching of multiple lessons in elementary classrooms. Previously offered as SMED 1011.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Clinical, Lecture, Lecture Clinical
Department/School: Teaching, Learning, Ed Science

SMED 1103 Teaching Science through Standards-Based Practices: Earth and Space Science
Description: Explores pedagogical strategies for the teaching and learning of Earth and space science systems. Students develop pedagogical content knowledge and will demonstrate a deep understanding of active investigations in the principles of Earth and space science systems. Course focuses on best pedagogical practices, formative assessments, and common student misconceptions.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

SMED 2011 Inquiry-Based Lesson Design-Step 2
Prerequisites: SMED 1011 and an interest in exploring teaching as a career.
Description: Master teachers introduce students to examples of high-quality inquiry-based lessons and model the educational concepts to which they are being introduced. In Step 2, students prepare and participate in the teaching of three (3) lessons in middle school classrooms.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Teaching, Learning, Ed Science

SMED 2100 Seminar in Mathematics Education
Description: This course provides students with exposure to topics of interest in the Mathematics Education field. Seminar topics will differ depending on current interests and topics in the field. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 2153 Teaching Algebra, Data and Probability Across the Elementary Curriculum
Description: Explores underlying concepts and pedagogical strategies for teaching algebra, data, and probability. Best pedagogical practices, formative assessment and common student misconceptions will be focused around all topics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 2200 Seminar in Science Education
Description: This course provides students with exposure to topics of interest in the Science Education field. Seminar topics will differ depending on current interests and topics in the field. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 2352 Nature Journaling: Standards-Based Science in the Outdoors
Description: Nature journaling involves blending science with art to better understand the natural world through the regular recording of observations, perceptions, patterns, and questions about the natural world. Topics cover a range of scientific background to prepare for teaching grades PreK-8. Course consists of field studies, readings, tutorials, and individual journaling. Best pedagogical practices, common student misconceptions, and the nature of science will be a focus within each topic.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 3013 Knowing and Learning in K-12 Education
Description: Expands the prospective teacher's understanding of current theories of learning and conceptual development. Students examine their own assumptions about learning and critically examine the needs of a diverse student population in the classroom.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 3100 Workshop In Mathematics Education
Description: This course provides students with exposure to a specific topic of interest in the Mathematics Education field. Workshop topics will differ depending on current interests and topics in the field. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 3153 Teaching Mathematics at the Primary Level
Prerequisites: Grade of "C" or better in: MATH 3603; six hours from MATH 1483, MATH 1493, MATH 1513, MATH 1613, MATH 2103, MATH 2144, SMED 2153 or STAT 2013; consent of instructor.
Description: Developmental levels in selection and organization of content and procedures for primary mathematics education. Same course as CIED 3153. Cannot be used for degree credit with SMED 5013.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

SMED 3200 Workshop in Science Education
Description: This course provides students with exposure to a specific topic of interest in the Science Education field. Workshop topics will differ depending on current interests and topics in the field. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 4003 Teaching Fundamental Concepts of Mathematics
Prerequisites: Full admission to Professional Education.
Description: Teaching of the basic skill areas. Study and comparison of contemporary basic mathematics textbooks. Recommended to be taken concurrently with public school practicum experiences. Course previously offered as CIED 4003. May not be used for degree credit with SMED 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 4013 Classroom Interactions
Prerequisites: SMED 1011, SMED 2011, SMED 3013
Description: A close examination of the interplay between teachers, students, and content, and how such interactions enable students to develop deep conceptual understanding. Students will learn how content and pedagogy combine to create effective teaching.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

SMED 4023 Advanced Field Placement in Mathematics and Science
Prerequisites: SMED 1012, SMED 3013, CIED 3313, SMED 4613 or SMED 4003, and full admission to Professional Education.
Description: This field-based class provides candidates with supervised teaching experiences in a content-specific classroom setting. Additionally, students will explore topics related to curriculum, assessment, and current issues in teacher education.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Clinical, Lecture, Lecture Clinical
Department/School: Teaching, Learning, Ed Science

SMED 4053 Teaching Geometry in the Secondary School
Prerequisites: Full admission to Professional Education.
Description: Overview of the present secondary geometry curricula and future trends. Axiomatic development of Euclidean geometry, proofs and transformational geometry from the perspective of the secondary mathematics teachers. Study and comparison of contemporary basic mathematics textbooks. Recommended to be taken after or concurrently with MATH 4403. Course previously offered as CIED 4053. May not be used for degree credit with SMED 5053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 4153 Teaching Mathematics at the Intermediate Level
Prerequisites: SMED 3153 or SMED 5013 (for Graduate Students) and MATH 3403 and MATH 3603, full admission to Professional Education.
Description: Selection and organization of content, procedures for instruction, and evaluation of outcomes in teaching the mathematics of the intermediate grades. Some attention to instruction in upper grades of the elementary school. Course previously offered as CIED 4153. May not be used for degree credit with SMED 5103.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

SMED 4353 Science in the Elementary School Curriculum
Prerequisites: Completion of 12 hours with a grade of "C" or better in required science courses and be fully admitted to Professional Education.
Description: The purposes, selection and organization of content, teaching and learning procedures and evaluation of outcomes in elementary school science. Course previously offered as CIED 4353.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

SMED 4560 Environmental Education
Description: Development of (teacher/leader) competencies in the content, methods, philosophy, and historical perspective of contemporary environmental education curricula using both indoor and outdoor settings as a multidisciplinary learning laboratory. Same course as CIED 5730. Course previously offered as CIED 4560. May not be used for degree credit with SMED 5560. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 4611 Authentic Research in the Science Classroom
Prerequisites: Full admission to Professional Education; and concurrent enrollment in SMED 4613.
Description: This course is designed to strengthen pre-service science teachers' understanding of how scientific knowledge is generated by engaging in an authentic research experience under the mentorship of a STEM mentor. Students will also learn how to write a scientific manuscript.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Teaching, Learning, Ed Science

SMED 4613 Teaching the Nature of Science Through an Inquiry Approach
Prerequisites: Full admission to professional education.
Description: This course is designed to assist pre-service science teachers in developing skills to teach science through an inquiry approach. Guided readings, discussions, group activities, and classroom field experiences, will focus on strengthening views on the nature of science. Course previously offered as CIED 4613. May not be used for degree credit with SMED 5203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 4713 Teaching and Learning Science in the Secondary School
Prerequisites: CIED 4613, and full admission to Professional Education.
Description: Assists students in developing safe classroom practices, science curriculum, and educational assessments supported by teaching and learning theories. Weekly classroom field experiences are required. Must be taken the semester prior to student teaching/internship. May not be used for degree credit with SMED 5713.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

SMED 4723 Senior Seminar in Secondary Mathematics and Science Education
Prerequisites: SMED 1011, SMED 2011, SMED 3013, SMED 4013, SMED 4023, CIED 4613 or CIED 4003, and CIED 4713 or CIED 4053, and full admission to Professional Education.
Description: Explores classroom management and discipline approaches as well as teacher research, parental involvement, school climate and community relations. May not be used for degree credit with SMED 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 4813 Yellowstone Science for Educators (N)
Description: Explore the science of the Greater Yellowstone Area (GYA). This course focuses on the systematic study of natural processes and mechanisms associated with the GYA. Emphasis is placed on the biological and physical (chemistry, earth, and physic) science concepts that have formed the parks that exist today. Consequences of human intervention are addressed. Applications of science content to K-12 classroom curricula are addressed. Required field trip to the GYA.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science
General Education and other Course Attributes: Natural Science Reasoning

SMED 5003 Teaching Fundamental Concepts of Mathematics
Prerequisites: Full admission to Professional Education.
Description: Teaching of the basic skill areas. Study and comparison of contemporary basic mathematics textbooks. Recommended to be taken concurrently with public school practicum experiences. May not be used for degree credit with SMED 4003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5013 Mathematics Education: Theory and Practice(Grade 1-4)
Description: Curriculum, materials, methods, and procedures related to the theory and practices of teaching mathematics in grades 1-4. Meets with SMED 3153. No degree credit for those with credit in SMED 3153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science
Additional Fees: EHS Outreach Tuition and fee of $299 per credit hour applies.

SMED 5050 Seminar in Integrated Mathematics and Science Applications
Description: Seminar topics may differ depending upon the nature of current interests and topics in mathematics and science education. Course previously offered as CIED 5050. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5053 Teaching Geometry in the Secondary School
Prerequisites: Full admission to Professional Education.
Description: Overview of the present secondary geometry curricula and future trends. Axiomatic development of Euclidean geometry, proofs and transformational geometry from the perspective of the secondary mathematics teachers. Study and comparison of contemporary basic mathematics textbooks. Recommended to be taken after or concurrently with MATH 4403. May not be used for degree credit with SMED 4053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5083 Teaching Science in the Elementary School (Grades 1-8)
Description: Curriculum, materials, methods, and procedures related to the theory and practice of science teaching in grades 1-8. Course previously offered as CIED 5083.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5103 Teaching Mathematics at the Intermediate Level
Description: Selection and organization of content procedures for instruction, and evaluation of outcomes in teaching the mathematics of the intermediate grades. Some attention to instruction in upper grades of the elementary school. May not be used for degree credit with SMED 4153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5113 Knowing and Learning in Mathematics and Science
Prerequisites: Admission to MAT program or consent of instructor.
Description: Expands the prospective teacher's understanding of current theories of learning and conceptual development. Students examine their own assumptions about learning and what it means to teach. They critically examine the needs of a diverse student population in the classroom. Meets with SMED 3013. No degree credit for those with credit in SMED 3013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5123 Classroom Interactions in Mathematics and Science
Prerequisites: SMED 5113 and Admission to MAT program or consent of instructor.
Description: A close examination of the interplay between teachers, students, and content, and how such interactions enable students to develop deep conceptual understanding. Students will learn how content and pedagogy combine to make effective teaching. Includes a school-based field experience. Meets with SMED 4013. No degree credit for those with credit in SMED 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5133 Problem-Based Learning in Mathematics and Science
Prerequisites: SMED 5113 and Admission to MAT program or consent of instructor.
Description: Explores authentic, important, and meaningful questions of real concern to students. Students will work in teams to formulate questions, make predictions, design investigations, collect and analyze data, make products and share ideas. Includes a school-based field experience. Meets with SMED 4023. No degree credit for those with credit in SMED 4023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5143 Methods for Teaching Secondary Science
Prerequisites: Admission into the Secondary Teaching Graduate Certificate Program or permission of instructor.
Description: Examines current trends and issues in secondary school science. The major focus is to provide an overview of instructional strategies, assessment techniques, and curriculum development. Course is required in the Secondary Education Graduate Certificate Program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5153 Methods for Teaching Secondary Math
Prerequisites: Admission into the Graduate Certificate for Effective Teaching in the Secondary Schools program or permission of instructor.
Description: Examines current trends and issues in secondary school mathematics. The major focus is to provide an overview of instructional strategies, assessment techniques, and curriculum development. Course is required in the Graduate Certificate for Effective Teaching in the Secondary Schools program.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5183 Teaching Science and Mathematics for Understanding in the Contemporary Classroom
Description: Explores principles of teaching mathematics and science for understanding in contemporary PK-12 classrooms.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5193 Inquiry and Problem-Based Learning in Science Education
Prerequisites: Completion of Bachelor's degree.
Description: Different aspects of teaching science through inquiry methods. Using current research as a guide, students will define scientific inquiry teaching and learning, explore assessing inquiry, and evaluate the roles of students, teachers, and discourse in the science classroom.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5203 Teaching the Nature of Science Through and Inquiry Approach
Prerequisites: Full admission to professional education.
Description: This course is designed to assist pre-service science teachers in developing skills to teach science through an inquiry approach. Guided readings, discussions, group activities, and classroom field experiences, will focus on strengthening views on the nature of science. May not be used for degree credit with SMED 4613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5223 Teaching Science in the Schools
Description: Materials, methods and classroom procedures related to science in grades K-12. Course previously offered as CIED 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5243 Environmental Education in the Curriculum
Description: Integration of environmental concepts in the total school curriculum. Review of P-12 environmental education curricula and methods of teaching environmental education in formal and nonformal settings. Course previously offered as CIED 5243.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5253 Teaching Rational Number Concepts, Proportional Reasoning, and Classroom Interactions
Prerequisites: Completion of a Bachelor's degree.
Description: Focus on teaching rational number concepts and developing proportional reasoning skills; attention given to learning methods which facilitate appropriate classroom interactions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5263 Assessment and Evaluation in School Mathematics
Description: Focus on classroom assessment to help teachers identify what students know about critical mathematics concepts, skills, procedures, and facts. Emphasis would be on using that information to inform their instructional decisions and enhance student learning. Course previously offered as CIED 5263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5270 Practicum in School Mathematics
Description: Diagnostic and therapeutic procedures in mathematics with students of all ages. Laboratory classes provide for clinical experiences in evaluation and instruction with children experiencing difficulty in mathematics. Course previously offered as CIED 5270. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SMED 5273 Number Concepts and Assessment at the Elementary Level (PK-6)
Description: Analysis and construction of effective mathematical tasks in teaching number systems and operations at the PK-6 level; attention is also given to the expansion of content knowledge and issues related to assessment. Course previously offered as CIED 5273.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5280 Workshop in Science Education
Description: Explores topics in science education, including developing, and/or implementing elementary and/or secondary science programming. Course previously offered as CIED 5280. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Lecture: 1-8 Contact: 1-8
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5283 Inquiry Teaching and Learning in Science and Mathematics Education
Description: Focus on different aspects of an inquiry learning environment in K-12 science and mathematics. Using current research as a guide, students will examine the structure of inquiry lessons, the roles of students and teachers, and classroom decision making that supports inquiry. Course previously offered as CIED 5283.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5293 Teaching and Learning Mathematics in Technology
Description: The focus of this course is on research and methods of teaching and learning with technology in the mathematics classroom. Topics will include philosophical, social, developmental and theoretical issues associated with the development and use of technology and school reform. Activities and applications will be explored as they relate to the potential for providing a technology-rich learning environment conducive to student construction of mathematical knowledge. Course previously offered as CIED 5293.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5313 Introduction to K-12 Engineering Education
Prerequisites: Completion of a Bachelors Degree.
Description: Involves the study of engineering education topics within the K-12 setting, which includes exploring current related literature as well as the implementation of the engineering design process.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5323 Technology for the K-12 STEM Educator
Prerequisites: Completion of a Bachelor's Degree.
Description: Survey of current innovative technologies for K-12 STEM classrooms.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5333 Developing Informal and Formal STEM Programs in Schools
Prerequisites: Completion of a Bachelor's Degree.
Description: Examines the areas of Science, Technology, Engineering, and Mathematics (STEM) that relate to curriculum development, instruction practices and leadership integration in schools and districts. Students will gain knowledge and skills to support STEM infusion throughout formal and informal environments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5560 Environmental Education
Description: Development of (teacher/leader) competencies in the content, methods, philosophy, and historical perspective of contemporary environmental education curricula using both indoor and outdoor settings as a multidisciplinary learning laboratory. May not be used for degree credit with SMED 4560. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Lecture: 1-4 Contact: 1-4
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5613 Effective Teaching of Mathematics in the Secondary School
Prerequisites: Consent of instructor.
Description: Directed advanced practicum in secondary school mathematical education. Includes study of current research findings in mathematical education, teaching strategies, materials and evaluation procedures in the secondary school. For experienced classroom teachers, superintendents, principals and supervisors. Course previously offered as CIED 5613.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5713 Teaching and Learning Science in the Secondary School
Prerequisites: Full admission to Professional Education.
Description: This course is designed to assist preservice science teachers in developing skills to teach science through an inquiry approach. The three components of science literacy: science content knowledge, practices of science, and nature of science are taught throughout the lens of a mentored science research apprenticeship. May not be used for degree credit with SMED 4713.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

SMED 5723 Senior Seminar in the Secondary Mathematics and Science Education
Description: Explores classroom management and discipline approaches as well as teacher research, parental involvement, school climate and community relations. May not be used for degree credit with SMED 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5750 Seminar in Mathematics Education
Prerequisites: Consent of instructor.
Description: Problems, issues and trends in mathematics education. Course previously offered as CIED 5750. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5813 Assessment in Science Education
Prerequisites: Completion of a Bachelor's degree.
Description: Guided readings, discussions, and group activities focus on strengthening students' understanding of state and national assessments in science education. Previously offered as SMED 6013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5913 Teaching Geometry and Spatial Visualization
Prerequisites: Completion of a Bachelor's degree.
Description: Focus on the development of geometric concepts and spatial visualization. Attention given to the understanding of learning trajectories and their role in student learning. Course previously offered as CIED 5913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5923 Teaching Algebra and Mathematical Tasks
Prerequisites: Completion of a Bachelor's degree.
Description: Focus on algebra concepts of functional thinking and generalized arithmetic. Attention will be given to the analysis and construction of effective mathematical tasks in the teaching of algebra. Course previously offered as CIED 5923.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5933 Teaching Data and Probability in Schools
Prerequisites: Completion of a Bachelor's degree.
Description: Focus on statistical literacy and the teaching of PK-12 data and probability concepts; emphasis on the use of instructional technology to enhance student learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 5943 Mathematics Leadership and Coaching
Prerequisites: Completion of a Bachelor's degree and nine hours from SMED 5253, SMED 5273, SMED 5913, SMED 5923, and SMED 5933.
Description: Develops skills and knowledge for school mathematics program design and leadership, and for coaching other teaching professionals in mathematics teaching. Course previously offered as CIED 5943.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 6123 Teaching the Nature of Science in Secondary Science Education
Prerequisites: Successful completion of a bachelor's degree.
Description: Guided readings, discussions, and group activities focus on strengthening views on the nature of science. Course previously offered as CIED 6123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 6223 Instruction and Learning in Science and Mathematics Education
Prerequisites: Acceptance into a doctoral program.
Description: Focus on learning and teaching in science and mathematics education contexts. Students will analyze and synthesize research in science and mathematics education that are related to the learning sciences. Course previously offered as CIED 6223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 6233 Affective Issues in Teaching Mathematics and Sciences
Prerequisites: Bachelor's Degree
Description: Explores current affective issues that influence the teaching and learning of mathematics and science. Students will explore topics such as beliefs, attitudes, emotions, motivation, efficacy, identity, and anxiety.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SMED 6753 Research in Mathematics and Science Education
Description: The examination of current research in mathematics and science teaching and learning, research designs, and the generation of new hypotheses. Course previously offered as CIED 6750 and SMED 6750.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

Social Foundations (SCFD)

SCFD 2003 Religious Diversity & Education (D)
Description: Explores philosophical and practical questions relating to the role of religion in education in culturally diverse democracies, relevant school law and policy, and instructional and curricular challenges faced by teachers and school leaders. Previously offered as SCFD 2001.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation
General Education and other Course Attributes: Diversity

SCFD 2333 Cineculture: International Issues (GS)
Description: Using documentary film, examines international issues relating to broader topics of race/ethnicity, gender, class, sexuality, (dis)ability, etc., through scholarship from the field of social foundations of education (history, philosophy, sociology, and anthropology). Previously offered as SCFD 2331.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation
General Education and other Course Attributes: International Dimension, Society & Human Behavior

SCFD 3223 Role of Teacher in American Schools (D)
Description: An introduction for those students wishing to pursue the teaching profession. An overview of teaching and policy in American schools and background in history, theory, and philosophy of education. Topics to be addressed include: diversity in schools; school governance; funding and organization; ethics and professionalism; curriculum; legal issues; pedagogy and current issues in education. Previously offered as CIED 3223 and CIED 2113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation
General Education and other Course Attributes: Diversity

SCFD 4123 History of Education (S)
Description: The development of major educational ideas and programs with emphasis on the growth of public education in the United States from the Colonial period to the present. Previously offered as CIED 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation
General Education and other Course Attributes: Society & Human Behavior

SCFD 4320 Special Topics in Social Foundations
Description: Focused exploration of a contemporary problem or issue in social foundations. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 4913 International Issues and the Role of the School
Description: International issues that shape educational perspectives and practices locally and globally. Consideration of major issues in education, such as the effects of globalization, the purpose of and right to an education, gender, indigenous knowledge, and global citizenship. Previously offered as CIED 4913.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 5000 Master's Report or Thesis
Description: Students studying for a master's degree enroll in this course for a total of 2 credit hours if they write a report, or 6 hours if they write a thesis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 5020 Master's Final Project
Prerequisites: Instructor approval.
Description: For students to complete the creative Master's project or experiential fieldwork. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 5023 The Comparative Approach: Theory, Method, and Practice
Description: Provides necessary analytical and practical skills needed for the application of comparative method and its usefulness for research within the Social Sciences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 5123 History of Education
Prerequisites: Graduate standing.
Description: History of elementary, secondary, and higher education with emphasis on Western society and the American schools. Discussion of historiography and historical methods with research emphasis on the impact of institutional development in a pluralistic society. Previously offered as SCFD 5823 and SCFD 6823.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 5223 Role of Teacher in American Schools
Prerequisites: Graduate level standing.
Description: An introduction for those students wishing to pursue the teaching profession. An overview of teaching and policy in American schools and background in history, theory, and philosophy of education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 5713 Educational Philosophy
Description: Advanced study of key philosophers in Western history whose ideas have greatly influenced educational theories and practices. Contemporary philosophical debates of educational issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 5720 Education Workshop
Description: For teachers, principals, superintendents, and supervisors who have definite problems in instruction or administration. Students must register for the full number of credit hours for which the workshop is scheduled for a particular term. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 5850 Directed Study
Description: Directed study for master's level students. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 5873 Culture, Society and Education
Description: Cultural assumptions, constructions and social practices in childhood and education in a variety of societies. Children's family, community and school lives. Anthropological and comparative perspective.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 5883 Educational Sociology
Description: The manner in which social forces and institutions influence education and the educational system in the United States. Previously offered as CIED 5883.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 5913 Introduction to Qualitative Inquiry
Description: Examination of the major approaches and fieldwork techniques of qualitative research as well as the challenges associated with conducting this form of inquiry.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 5923 Popular Culture and Education
Description: Investigation and analysis of the ways popular culture socializes and educates young people in social and school norms. Considers connections among popular culture, youth identity, relationships, resistance and activism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 5990 Problems and Issues in Social Foundations
Description: In-depth exploration of a contemporary problem or issue in the social foundations of education. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 5993 Urban Education
Description: Examines the historical, political, economic and sociocultural contexts of urban education as it pertains to students, teachers, administrators, and community members. Previously offered as SCFD 5998.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6000 Doctoral Dissertation
Description: Required of all candidates for the Doctor of Philosophy degree. Credit is given upon completion of the dissertation. Offered for variable credit, 1-25 credit hours, maximum of 25 credit hours.
Credit hours: 1-25
Contact hours: Contact: 1-25 Other: 1-25
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 6023 Comparative Education
Description: A systematic investigation of educational institutions in various nations for the purpose of an enlarged, critical view of American education. Researching specific transnational educational theories. Previously offered as SCFD 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6113 Theoretical Foundations of Inquiry
Description: Exploration of the history and philosophical assumptions undergirding theories, methods and issues of ethics and rigor associated with both qualitative and quantitative research in education and related fields. An in-depth overview of research paradigms through readings and discussions. Foundational doctoral-level research course. Previously offered as EDLE 6853.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6123 Qualitative Research I
Prerequisites: Beneficial to have taken REMS 5013 and either SCFD 6113 or EDLE 6853 or HESA 6853, as well as a course introducing doctoral-level research, such as CIED 6503.
Description: The traditions, philosophies, approaches, and methods of qualitative research, including participant observation, interviewing, and preliminary data analysis. Prior knowledge/experience with literature reviews and research design is expected.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6163 Ethnography
Prerequisites: SCFD 5913 or SCFD 6123, or other graduate level qualitative methods course.
Description: Theoretical and historical grounding of ethnography as a methodology, exposure to diverse ethnographic approaches such as autoethnography, critical, visual and feminist ethnographies, and opportunities to conduct a small scale ethnography project.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6173 Visual Methodologies
Prerequisites: SCFD 5913 or SCFD 6123, or other graduate level qualitative methods course.
Description: Practical guidance, theoretical orientation, and ethical considerations in the creation and interpretation of visual culture and its use with different qualitative methodologies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6183 Narrative Research Methodologies
Prerequisites: SCFD 5913 or SCFD 6123, or other graduate level qualitative methods course.
Description: Theoretical grounding, research design, and practice in qualitative narrative research methodologies such as narrative inquiry, auto/biography and life history.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6190 Qualitative Research: Selected Methods
Prerequisites: Honors Program participation, junior standing.
Description: Study of select qualitative methods to get a “hands on” feel for the method. Methods include classic and new approaches such as arts-based, biography, case study, discourse analysis, ethnography, grounded theory, historical social science, phenomenology, writing and representation. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 6193 Qualitative Research II
Prerequisites: SCFD 6123, SCFD 6133 or consent of instructor.
Description: Various approaches to qualitative data analysis, including the use of computer applications. Additional attention to issues of writing, representation, reflexivity, and reciprocity. Practice in analytic techniques and writing research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6443 Ethics and Moral Education
Description: Interdisciplinary perspective of traditional and contemporary ethical theories, focusing on application to professional practice and moral education. Moral development, the moral life, feminist ethics, and character education.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6501 Curriculum and Social Foundations Doctoral Seminar I
Description: Orientation to doctoral study primarily for students in the PhD program in Curriculum and Social Foundations.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6511 Curriculum and Social Foundations Doctoral Seminar II
Description: Orientation to the professoriate primarily for students in the PhD program in Curriculum and Social Foundations.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6630 Topics in Philosophy Education
Description: Consideration of topic or topics (e.g. childhood and modern subjectivity) that are of great concern to the field of philosophy of education. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Lecture: 3-6 Contact: 3-6
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6850 Directed Reading
Description: Directed reading for students with advanced graduate standing to enhance students' understanding in areas where they wish additional knowledge. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 6853 Anthropology of Education
Description: Understanding and critically reflecting on educational issues from a cultural anthropological perspective. Developing the knowledge and skills needed to understand cultural influences on teaching and learning.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6880 Internship in Education
Description: Directed off campus experiences designed to relate ideas and concepts to problems encountered in the management of the school program. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 6883 Transforming Pedagogies
Description: Contemporary pedagogical theories and school reform initiatives, including origins, purposes, underlying philosophical assumptions, cultural contexts, and implications for schooling.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6910 Practicum
Description: The student carries out an acceptable research problem (practicum) in a local school situation. Credit given upon completion of the written report. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

SCFD 6983 Diversity and Equity Issues in Education
Description: Many social, historical and cultural constructions of "difference" and the impact in personal and professional relationships in education and related human service fields. Categories of race, class, and gender, but may also include ethnicity, sexual orientation, and special needs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

SCFD 6990 Seminar in Social Foundations
Description: In-depth seminar focusing on a contemporary problem or issue in the social foundations of education. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

Sociology (SOC)

SOC 1113 Introductory Sociology (S)
Description: Coming to terms with the requirements for living in a complex social world. Sociological concepts used to assist students in understanding the social influences in day-to-day life.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour and Cowboy Concur OL Res Tuition fee of $189.10 per credit hour apply.

SOC 2113 Introduction to Criminal Justice
Description: This introductory course provides an overview of the U.S. criminal justice system. Some of the topics covered include police and corrections officers, prosecutors, defense attorneys, and judges. While a variety of societal responses to adult and juvenile crimes are discussed, this course primarily focuses on the formal responses of law enforcement, the courts, and corrections. Societal goals of punishment are covered as well.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 2123 Social Problems (DS)
Description: Exploration in selected social issues in contemporary American society, such as deviance, poverty, sexism, racism and ageism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Diversity, Society & Human Behavior

SOC 2213 Gangs and Society (S)
Description: This course provides an overview of gangs as social phenomena. Gangs of particular interest include youth gangs, urban/rural gangs, street gangs, prison gangs, military gangs, and outlaw motorcycle gangs. The course additionally analyzes how socially-constructed group characteristics (i.e., race, class, gender and ethnicity) relate to gang membership. U.S. street and prison gangs receive extensive coverage. Social alternatives to gangs are discussed as well.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 2233 Building Partnerships through Policing
Description: The course explores the fundamentals of policing, introducing students to important concepts in and practices related to policing with particular focus on the college setting. This course is aimed at students considering a law enforcement career or interested in learning more about policing. Part of OSUPD's mission is to educate students about how we police the community. Applying both theoretical knowledge with practical application introduces the realities faced by modern law enforcement. By taking this course, students will gain an introspective, applied perspective of law enforcement. Students will be required to complete a release waiver that allows them to participate in some of the practical skills illustrated throughout the course, including a ride-along with an OSUPD officer and interacting with the firearms simulator.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 2243 Sociology of Drugs
Description: Why do individuals use drugs? Why are some substances criminalized and not others? What sociocultural factors determine how drugs are defined and categorized? What is the history of U.S. drug policy and how has it changed? What responses are effective in controlling drug use and abuse? This course answers these questions and more through sociological literature, case studies, film and popular media, and class discussions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 2890 Honors Experience in Sociology
Prerequisites: Honors Program participation and concurrent enrollment in a designated SOC course.
Description: A supplemental Honors experience in Sociology to partner concurrently with designated Sociology course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Honors Credit

SOC 3113 Theoretical Thinking in Sociology
Prerequisites: Six credit hours of sociology, including SOC 1113.
Description: Sociological theory in three broad areas: the emergence of social theory, the major schools of social theory and the relevance of theory to sociological research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 3133 Racial and Ethnic Relations (DS)
Description: This course examines cause and dimensions of racial inequalities in American society, with special emphasis on intersectional, social psychological, organizational, and institutional processes. Previously offered as SOC 2133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Diversity, Society & Human Behavior

SOC 3153 Sociology of Sport (S)
Description: Application of sociological principles, theories, and methods to the understanding of sport as a social institution. Topics such as the social organization of sport, relations with other institutions such as education, economy, politics, family and religion, deviance in sport, inequality, gender, and race in sport, and the future of sport are covered.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 3223 Social Psychology (S)
Description: Social basis of personality development and behavior, including symbolic environment, self and group motivation, attitudes and opinions, and social roles.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 3323 Collective Behavior and Social Movements
Description: Analyzes panics, crazes, riots and social movements emphasizing institutional and social psychological origins and consequences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 3333 Policing and Society (S)
Description: This course explores the social institution of policing. Extensively covered are the relationships between police agencies, agents, and practices and social groups (based on race, class, gender, sexual identity/orientation, age, disability, and other classifications) and policies (e.g., War on Drugs) in the United States. Additional course topics include the roles of police, police patrol, police discretion, police use of force, and community policing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 3343 Technology and Society (S)
Description: Exploration of various aspects of the relationship between society and technology. Analysis of arguments about the role of technology in society. Examination of the social contexts within which technology is created and discussion of the mechanisms and processes through which technology is embraced or discarded, such as peer review, politics, religion, and legal frameworks. Previously offered as SOC 4463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 3423 Urban Sociology
Description: Urbanization as a worldwide process. The demography and ecology of cities and metropolitan regions. Urban planning and future development.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 3523 Juvenile Delinquency (DS)
Description: Juvenile delinquency behavior in relation to family, school, church, peers, community and institutional structures. The extent of delinquent expressions, varieties of delinquency, comparative international perspectives and new trends of females in delinquency and gang behavior.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Diversity, Society & Human Behavior

SOC 3713 Religion, Culture and Society
Prerequisites: Recommended: SOC 1113, ANTH 2353, REL 1103.
Description: An introduction to the scientific study of religion. Religious activity in both tribal and technological societies studied in the light of contemporary interpretations of culture and of social behavior. Same course as REL 3713.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 3890 Advanced Honors Experience in Sociology
Prerequisites: Honors Program participation and concurrent enrollment in a designated SOC course.
Description: A supplemental Honors experience in Sociology to partner concurrently with designated upper-division SOC course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Honors Credit

SOC 3953 Applied Sociology
Prerequisites: Sociology majors or consent of instructor or adviser.
Description: Application of sociological theory and methods to various job situations. Preparation for field experience in a variety of work settings. Previously offered as SOC 3952.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 3993 Sociology of Aging (DS)
Description: Sociological perspectives on aging, including the analysis of the social behaviors across all stages of the life course from birth to death.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Diversity, Society & Human Behavior

SOC 4023 Juvenile Corrections and Treatment Strategies
Prerequisites: SOC 3523 or SOC 4333.
Description: The juvenile justice system, emphasizing the juvenile court, diversion and youth service bureaus as well as the more traditional training schools and foster homes. Experimental treatment strategies with institutionalized delinquents.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4033 Comparative Perspectives of Criminal Justice Systems (GS)
Description: Study of criminal justice systems in different nation states and culture context from a different comparative perspective.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: International Dimension, Society & Human Behavior

SOC 4043 Gender and Work (DS)
Description: Consideration of unpaid, paid and volunteer work and gender differences. Linkages between economy, work, and family with examples from United States and less developed countries.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Diversity, Society & Human Behavior

SOC 4103 The Death Penalty in America (S)
Description: This course is designed to examine problems and issues related to the death penalty in the United States, including the history of capital punishment, important Supreme Court decisions, how the various jurisdictions (state and federal) deal with capital cases, the comparative costs of incarceration and execution, miscarriages of justice in capital cases and how the criminal justice responds to these issues. Same course as AMST 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 4133 Social Research Methods
Prerequisites: SOC 1113. Past completion of or concurrent enrollment in SOC 3113.
Description: Applying sociological theory to designing quantitative and qualitative research; methods of data collection, processing and analysis; basic skills in computer analysis of social data. Research project included.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4153 Sociology of Health and Illness
Description: Critically analyzes the social production of disease and illness in modern society from a sociological perspective. Examines the social organization of Medicare care, including critical issues affecting healthcare and health insurance in the United States. Focuses on the meanings and experiences of illness, as well as on contemporary critical debates such as environmental and health, bioengineering, and bioethics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4213 Sociology of Sexualities (S)
Description: Sociological aspects of sexual behavior, attitudes and belief systems in society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 4243 Quantitative Methods in Sociology
Prerequisites: SOC 1113, SOC 3113, SOC 4133.
Description: Strategies and procedures in the analysis of quantitative sociological data, including the use of statistical computer programs.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4313 Sociology of Law
Description: Law has been studied from different perspectives. In this course, we will focus on issues concerning the relationship between law, legal institution, and society. Issues such as the relationship between law and social change, the origins of law, the integrative function of law, law and social conflict, legal profession, and rationales of punishment and penal policies are explored through classical and contemporary sociological theories. In addition, we will consider the role of law and legal institution in reinforcing and changing social class, gender, and race inequalities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4333 Criminology
Description: Summary of sociological and psychological research pertaining to crime causation and crime trends. Modern trends in control and treatment.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4383 Social Stratification (S)
Description: Systems of class and caste, with special attention to the United States. Status, occupation, income, and other elements in stratification.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 4403 Research Unleashed: The Science of Animal-Assisted Interventions
Prerequisites: STAT 2013 or STAT 2053 or Instructor Permission
Description: This course immerses students in hands-on, applied research through direct collaboration with Oklahoma State University's Pete's Pet Posse (P3), the nation's most comprehensive university-based pet therapy program. Students will gain practical experience in designing, conducting, analyzing, and communicating research focused on the wellness impacts of animal-assisted interventions within the campus community and beyond.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4433 Environmental Sociology (S)
Description: Critical assessment of the social causes and consequences of problems with resource scarcity and environmental degradation. Environmental problems viewed as social problems, requiring an understanding of the structural conditions producing environmental problems and inhibiting resolutions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 4453 Environmental Inequality (S)
Prerequisites: SOC 1113.
Description: Considers the connection between environmental problems and race/ethnicity and class inequality. Focuses on environmental justice/equity, social movements, health, policy and risk at the local, national and global levels.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 4473 Oklahoma Environmental Sociology
Description: Critical assessment of the social causes and consequences of environmental problems in Oklahoma, both historical and contemporary. Examines the Land Run, the Dust Bowl, the Oil Boom, land ownership and use patterns.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4493 Sociology of Environmental Hazards and Disasters
Prerequisites: SOC 3113 or instructor permission.
Description: Explores societal dimensions of environmental hazards and disasters, emphasizing disaster theory and research, key issues in the sociological study of environmental hazards and disasters, such as social impacts, social vulnerability, and community development and resilience.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4533 World Population Problems
Description: Fertility, mortality and migration, and other factors related to population size, density, and composition; the population explosion, worldwide famine, birth control, and other serious social issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4573 Victimology
Description: This course combines various academic disciples to introduce the field of Victimology. The course represents an overview of the Victimology field; courts, victim services, victimization, and personnel issues. Students use the on- line and reading material to build a framework for understanding the wide field of Victimology together with victim issues and career opportunities. Same course as PSYC 4573.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4643 Sociology of Gender (S)
Description: Explores the social organization of gender from diverse theoretical and empirical perspectives using a global experience.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 4653 Gender and the Middle East (GS)
Description: An overview of gender-related issues in the Middle East and North African countries is provided to bridge cultures and build understanding. Specific attention is given to issues of women and how they are connected to changes in culture, economics, politics and society. May not be used for degree credit with SOC 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: International Dimension, Society & Human Behavior

SOC 4663 Undergraduate Capstone Seminar in Sociology
Prerequisites: Majors; senior standing; SOC 3113, SOC 4133, SOC 4243.
Description: Concluding course for Sociology majors. Application of the skills, knowledge and expertise acquired in Sociology, including critical thinking, writing, theory and methods.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4723 Sociology of Families (S)
Description: The family as a social institution and relationship between family and other institutional structures and systems, including work and the economy, education, government and law, health care, and the media. Previously offered as SOC 3723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 4733 Criminal Behavior Analysis
Prerequisites: SOC 3523 or SOC 4333.
Description: This course combines various academic disciplines toward a behavioral examination of the violent criminal offender. By examining the crime scene from a behavioral perspective, the psychodynamics of the offender, the sociological forces, and the social psychological dimensions of victim-offender interactions are combined for a more holistic understanding of the violent offender.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4743 Criminalistics: Introduction to Forensic Sciences
Prerequisites: SOC 3523 or SOC 4333.
Description: Criminalistics or forensic sciences involve the application of physical and behavioral sciences to social order or more specifically, the relationship between science and law. This course introduces the student to the various aspects of forensic examinations of violent criminal behavior. By examining modern techniques of crime scene analysis, the student learns how theory and technological development impact our social concepts of law and justice.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4753 Advanced Forensics
Prerequisites: SOC 3523 or SOC 4333 and SOC 4743.
Description: Forensic sciences involve the application of physical and behavioral sciences to social order and law. This course advances students' understanding of examinations of violent criminal behavior. Students gain awareness of the interdependent relationships of various physical and social science disciplines and how these issues are operationalized at an actual crime scene.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4923 Sociology of Punishment (S)
Description: An overview of punishment across time and place. Topics surveyed include theories of punishment; formal and Informal social control; and corrections, including Its consequences and alternatives. Special topics may be examined when time permits.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology
General Education and other Course Attributes: Society & Human Behavior

SOC 4950 Current Topics in Sociology
Description: Special topics in sociology; topics vary from semester to semester. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Lecture: 1-12 Contact: 1-12
Levels: Undergraduate
Schedule types: Lecture
Department/School: Sociology

SOC 4990 Exploration of Sociological Issues
Prerequisites: Consent of instructor.
Description: Examines sociologically significant topics and issues. May not be used for degree credit with SOC 5990. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Sociology

SOC 4993 Senior Honors Thesis
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis under the direction of a senior faculty member, with second faculty reader and oral examination. Required for graduation with departmental honors in sociology.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Sociology
General Education and other Course Attributes: Honors Credit

SOC 5000 Thesis in Sociology
Description: Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Sociology

SOC 5001 Graduate Proseminar
Prerequisites: Admission to Sociology graduate program.
Description: Introduction and orientation to the graduate program in the Department of Sociology.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5013 Creative Component in Sociology
Description: A guided course serving as the final requirement for graduate students in the Department of Sociology's Master of Science degree, non-thesis option.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5063 Seminar in Social Inequality and Stratification
Prerequisites: Graduate standing.
Description: Provides comprehensive overview and analysis of theories and research in social inequality and social stratification. Includes: study of classical and contemporary theories, development of research in the field, dynamics of inequalities and current and future perspectives.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5113 Classical Sociological Theory
Prerequisites: SOC 3113 or equivalent.
Description: Major trends in sociological thought. The emergence of sociological theory in Europe and America.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5123 Contemporary Sociological Theory
Prerequisites: SOC 3113 or equivalent.
Description: Critical examination of significant theoretical formulations, 1920 to the present. Relation between theoretical development and current research emphasis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5213 Techniques of Population Analysis
Prerequisites: Graduate standing.
Description: Examination of primary techniques and statistics employed in studies of population characteristics. Examination of sources of demographic data, methods employed in the collection and analysis of data on population characteristics, composition and change.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5223 Culture, History and World Systems
Prerequisites: Admission to Graduate College and international studies program.
Description: The modern world system and its new social formations resulting from increasing globalization. Examination of cultural, socio-economic, and political changes in developed and developing societies. Modern societies, their historical developments, the cultural politics of difference, and the re-emergence of ethnic groups worldwide. Existing theoretical models of change for profit and non-profit organizations. Same course as INTL 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5243 Social Research Design
Prerequisites: SOC 3113; SOC 4133 or equivalent; graduate standing.
Description: Techniques in design, data collection, and interpretation of data for sociological research.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5263 Quantitative Analysis of Social Research
Prerequisites: SOC 3133; SOC 4133 or equivalent; graduate standing.
Description: Advanced techniques in sociological research and data analysis focusing on the formulation of substantive research questions and application of a variety of research procedures to answer such questions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5273 Qualitative Research Methods
Description: Examination of ethnographic studies and implementation issues connected with qualitative research. Research project required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5283 Advanced Qualitative Sociological Research
Prerequisites: SOC 5273 or consent of instructor.
Description: Intensive examination of advanced qualitative research in sociology. Requires students to design and implement their own qualitative sociological research projects under the guidance of the instructor.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5323 Seminar on Collective Behavior and Social Movements
Prerequisites: Graduate standing.
Description: Examination of major theoretical and empirical approaches employed in the study of social movements. Exploration of problems on the nature and current theories of social movements including individual versus group approaches. Grassroots resistance, community organizing, political conflicts, and revolutions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5333 Global Population and Social Problems
Prerequisites: Graduate standing.
Description: Study in world, regional and national population characteristics, changes and associated problems and cultural influences.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5343 Sociology of Law and Punishment
Description: Advanced study in the sociology of law and punishment. Focus on both classical and contemporary sociological and legal research. An interdisciplinary and comparative approach is also emphasized.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5463 Seminar in Environmental Sociology
Description: Critical overview of contemporary developments in environmental sociology. Environment concern, disasters, health issues, risk assessment, and environmental conflict.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5473 Seminar on the Contemporary Environmental Movement
Description: Critical overview of contemporary theory and research on the environmental movement. Analysis of crucial movements dynamics, including historical development, central organizing themes, strategies and tactics, and movement activities, environmental health movements, and transnational movement campaigns.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5493 Seminar in Environmental Justice
Description: Considers racial, class and equity implications of environmental degradation and regulation. Includes discussion of controversies over the siting of hazardous facilities in urban and rural areas, the extraction of resources from native lands, national and transnational export of toxic waste to the South and the development of a distinct environmental justice movement.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5553 Seminar in Medical Sociology
Description: Advanced study in the sociology of medicine, including the doctor-patient relationship, the social meanings of health and illness, epidemiology, health care delivery, and the medicalization of American society. Analysis of the sociology of organic illness and mental illness using readings from both classical and contemporary sources.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5573 Seminar on Victimology
Description: Critical overview of contemporary theory and research on victimology. Relationships between victim and offenders, social institutions such as media, police, business, advocacy groups, and various social movements.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5583 Comparative Criminal Justice Systems
Description: Examines crime and criminal justice in a global world. Compares the current major legal traditions with the U.S. criminal justice system.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5593 Seminar on Organization and Administration in Law Enforcement and Society
Description: Critical overview of contemporary theory and research on administration in law enforcement and society.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5643 Gender and Society
Prerequisites: Graduate standing.
Description: This course provides an overview of current theoretical and empirical research in the sociology of gender. Topics include (1) how best to theorize, conceptualize, and analyze gender; (2) how gender is socially constructed and enacted in individuals' lives; (3) how gender intersects with other identities (e.g., race, social class, sexuality) to shape our experiences and life chances; and, (4) how gender is embedded within institutional processes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5653 Gender and the Middle East
Description: An overview of gender-related issues in the Middle East and North African countries is provided to bridge cultures and build understanding. Specific attention is given to issues of women and how they are connected to changes in contemporary culture, economics, politics, and society. May not be used for degree credit with SOC 4653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5663 Seminar in Race and Ethnicity
Prerequisites: Graduate standing.
Description: Analysis of the dynamics of intercultural and intergroup relations in America with special emphasis on the examination of major conceptual perspectives that have characterized the study of race and ethnicity in American life.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5763 Contemporary Organizational Theory
Prerequisites: Graduate standing.
Description: Advanced study of contemporary theories used to explain, predict and understand organizations. Behavior of populations of organizations.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5793 Seminar on Organizational Deviance
Description: Overview of contemporary theory and research on organizational deviance. Defining acceptable risk. Organizational structures, processes, and standard operating procedures that produce mistake, misconduct and disaster.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5813 Myths and Realities of Organizational Change
Prerequisites: Graduate standing.
Description: A critical examination of the various theories and models that address change and improvement processes in complex organizations. Theoretical and methodological validity of assumptions underlying such organizational theories and models.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5950 Seminar in Sociology
Prerequisites: Graduate standing.
Description: Special seminar; topics vary from semester to semester. Offered for variable credit, 1-3 credit hours, maximum of 25 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 5980 Internship
Description: Supervised field placement. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Sociology

SOC 5990 Advanced Problems and Issues in Sociology
Prerequisites: Consent of instructor.
Description: Group enrollment or individual research enrollment as needed. Graduate level analysis of special problems and issues in sociology not covered in other department offerings. May not be used for degree credit with SOC 4990. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Sociology

SOC 6000 Dissertation
Description: Offered for variable credit, 1-12 credit hours, maximum of 18 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Sociology

SOC 6213 Theory of Social Structure
Prerequisites: Six hours of undergraduate sociology or equivalent.
Description: Relationship between human thought and the social context within which it arises.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 6390 Seminar in the Family, Marriage and Male-Female Roles in American Sociology
Description: Analysis of published research in sociology of family, marriage and male-female roles and relationships with special emphasis on American society. Offered for variable credit, 2-3 credit hours, maximum of 6 credit hours.
Credit hours: 2-3
Contact hours: Contact: 2-3 Other: 2-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Sociology

SOC 6460 Advanced Studies in Environmental Sociology
Prerequisites: SOC 5463 or consent of instructor.
Description: Intensive examination of selected topics in environmental sociology. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Sociology

SOC 6463 International Issues in Environmental Sociology
Prerequisites: Graduate standing.
Description: Advanced study of the international context of environmental issues.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 6493 Sociology of Disaster
Description: Critical examination of contemporary theory and research on the social aspects of disasters. Social system response to large-scale crises. Vulnerability, warnings, preparedness, recovery, mitigation, and sustainability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 6653 Seminar in Social Psychology
Description: Development and critical analysis of theory and research in social psychology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 6753 Seminar in Deviance and Criminology
Description: Current research and theory in criminology, penology and deviance in modern society. Previously offered as SOC 6750.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 6763 Seminar in Theory of Criminal Behavior Analysis
Description: Critical overview of contemporary theory and research on criminal behavioral analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 6853 Seminar in Symbolic Interactionism
Description: Symbolic interactionism, a major contemporary school of thought in sociology and psychology, emerging from philosophical pragmatism with special emphasis on the thoughts of George H. Mead and its derivatives including dramaturgy, existential social psychology, and phenomenological.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Sociology

SOC 6950 Seminar in Social Gerontology
Description: A theoretical and practical examination of the sociological implications, both individual and societal, of an aging population. Offered for variable credit, 2-3 credit hours, maximum of 6 credit hours.
Credit hours: 2-3
Contact hours: Contact: 2-3 Other: 2-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Sociology

Soil Science (SOIL)

SOIL 1113 Land, Life and the Environment (N)
Description: Information about soils at local, regional, national, and global scales as well as basic soil properties and how they are influenced by human activity. Importance of soil to human health, agricultural production, environmental quality, and sustainable ecosystems. Practical soil management strategies in support of the production and ecological regulator functions of the soils. May not be used for degree credit with SOIL 2124.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences
General Education and other Course Attributes: Natural Science Reasoning

SOIL 2124 Fundamentals of Soil Science (N)
Prerequisites: CHEM 1215 or CHEM 1314 or CHEM 1414.
Description: Introduction to soil physical, chemical and biological properties and processes necessary in formulating land use decisions related to agricultural, engineering and environmental concerns. Soil formation, classification and conservation. Analysis/evaluation of soils in field and laboratory settings. Course previously offered as AGRN 2124. May not be used for degree credit with SOIL 1113.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences
General Education and other Course Attributes: Natural Science Reasoning

SOIL 3033 Soils and Societies (S)
Description: Influence of the soil in shaping human decisions that affect food supply, cultural practices, economic growth, and establishment of societies. Survey of past and current land uses and land use changes that lead to the demise of societies or advancement of people's lives. Themes include key human utilization of the soil in Oklahoma and in the United States, roles of soil in waste treatment, and advances in assessment and utilization of soil that affect human lives. Soils in art, mythology, pop culture, healthcare, and warfare.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences
General Education and other Course Attributes: Society & Human Behavior

SOIL 3433 Soil Genesis, Morphology, and Classification
Prerequisites: SOIL 2124.
Description: Basic principles dealing with how and why soils differ, their descriptions, geographic distributions and modern classification of soils. Soil genesis and classification a prerequisite to sound land use planning and land management. Course previously offered as AGRN 3433. May not be used for Degree Credit with SOIL 5353.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

SOIL 4011 Professional Preparation for Soil Profilers
Description: Professional preparation of soil profilers focusing on rules that affect soil profilers, soil profile description, and soil treatment of wastewater. Onsite wastewater treatment systems, and soil and site properties that affect treatment. Emphasis in attaining proficiency in soil profile characterization, field measurement of soil water flow, and sizing of onsite sewage treatment systems.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 4210 Describing and Interpreting Soils
Prerequisites: SOIL 2124.
Description: Describe and classify soil properties in the field and interpret for suitable agriculture, urban, and other land uses. Course previously offered as AGRN 4210. May not be used for Degree Credit with SOIL 5210. Offered for fixed 1 credit hour, maximum of 3 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

SOIL 4213 Precision Agriculture
Prerequisites: MATH 1513, senior standing.
Description: Introduction to the concepts of precision agriculture including analysis of spatial variability, relationships of fertility and crop response, geographical information systems, variable rate technology, optical sensing, global positioning systems, and yield monitoring. Case studies included for detailed analyses. Same course as BAE 4213. May not be used for Degree Credit with SOIL 5213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 4234 Soil Nutrient Management
Prerequisites: SOIL 2124.
Description: Soil fertility and use of fertilizer materials for conservation, maintenance, and improvement of soil productivity and to minimize environmental concerns. Course previously offered as AGRN 4234. May not be used for Degree Credit with SOIL 5234.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

SOIL 4363 Environmental Soil Science
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and SOIL 2124.
Description: Re-emphasis of soil science concepts vital in the understanding of processes that are within the realms of the ecological regulator function of the soil; discussions on the role of soil as the foundation of forest, rangeland/pastureland, agricultural, urban and suburban, as well as wetland ecosystems; impact of soil processes on global environmental concerns; soil as the ultimate recipient of waste; impact of soil processes on groundwater and surface water quality. Same course as ENVR 4363. Course previously offered as AGRN 4363. May not be used for Degree Credit with SOIL 5363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 4463 Soil and Water Conservation
Prerequisites: SOIL 2124.
Description: Assess the importance, quality and quantity of soil and water as natural resources for ecosystems and societies. Principles of soil erosion processes and management practices to decrease erosion in urban, cropland and rangeland systems. Understand the principles of hydrology cycle to improve water use efficiency of precipitation and irrigation resources. Examine resource mismanagement that have resulted in desertification, salinization and deforestation. Course previously offered as AGRN 4463. May not be used for Degree Credit with SOIL 5463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 4470 Problems and Special Study
Prerequisites: Consent of the instructor.
Description: Problems in soil science selected from topics in soil chemistry and fertility, soil physics, soil biology, soil conservation, and soil morphology. Offered for variable credit, 1-3 credit hours, maximum of 12 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

SOIL 4483 Soil Microbiology
Prerequisites: SOIL 2124 and BIOL 1114 or (BIOL 1113 and BIOL 1111) or consent of instructor.
Description: An overview of microorganisms living in the soil and their activities which are significant to agricultural practices and the environment. No credit for both SOIL 4483 and SOIL 5383. Course previously offered as AGRN 4483. May not be used for Degree Credit with SOIL 5383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 4571 Professional Preparation in Plant and Soil Sciences
Prerequisites: Senior standing in plant and soil sciences.
Description: Preparation for professional certification exams and career opportunities in plant and soil sciences. Same course as PLNT 4571.
Credit hours: 1
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 4683 Soil, Water, and Weather
Prerequisites: SOIL 2124 and PHYS 1114.
Description: Introduction to the physics of the soil-plant-atmosphere continuum. A focus on physical properties of soil and interactions with water and weather in terrestrial ecosystems. Course previously offered as AGRN 4683. May not be used for Degree Credit with SOIL 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 4893 Environmental Soil Chemistry
Prerequisites: SOIL 2124 and CHEM 1225 or CHEM 1515.
Description: Chemistry of soil systems with an emphasis on environmental health and quality. Topics include soil minerals, soil organic matter, soil solution, sorption phenomena, redox reactions, and soil acidity. Same course as ENVR 4893. Previously offered as SOIL 3893 and AGRN 3893.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5000 Master's Thesis
Prerequisites: Consent of adviser.
Description: Research planned, conducted and reported in consultation with a major professor. 1-6 credits, 6 max total credits under Plan I, and 2 max total credits under Plan II. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

SOIL 5020 Graduate Seminar
Prerequisites: Graduate standing.
Description: Discussion of research philosophy, methods, interpretation, and presentations. Profession development and contributions to the scientific community. Same course as PLNT 5020. Offered for fixed 1 credit hour, maximum of 3 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5110 Problems and Special Study
Prerequisites: Consent of instructor.
Description: Supervised study of special problems and topics not covered in other graduate courses. Offered for variable credit, 1-4 credit hours, maximum of 12 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

SOIL 5112 Research Methods in Plant and Soil Sciences
Prerequisites: Graduate standing.
Description: Exploration of various methodologies helpful in field scale research. Application and understanding biometry as it relates to research result interpretation. Course previously offered as SOIL 5111.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5120 Teaching Practicum in Plant and Soil Sciences
Description: College-level teaching experience under the mentorship of a faculty member who assists in planning of class activities, provides guidance in teaching-related projects, observes classes and provides feedback regarding course delivery and classroom management. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

SOIL 5131 Professional Development Colloquium in Plant and Soil Sciences
Description: Professional preparation of graduate students for future careers. Discussions on topics related to the application process and successful careers in the academic, private industry and government sectors. Concerns of international students, career-life balance and other post-graduate school career issues are discussed.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Discussion
Department/School: Plant & Soil Sciences

SOIL 5210 Describing and Interpreting Soils
Prerequisites: SOIL 2124.
Description: Describe and classify soil properties in the field and interpret for suitable agriculture, urban, and other land uses. May not be used for degree credit with SOIL 4210. Offered for fixed 1 credit hour, maximum of 3 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

SOIL 5213 Precision Agriculture
Prerequisites: MATH 1513, senior standing.
Description: Introduction to the concepts of precision agriculture including analysis of spatial variability, relationships of fertility and crop response, geographical information systems, variable rate technology, optical sensing, global positioning systems, and yield monitoring. Case studies included for detailed analyses. May not be used for degree credit with SOIL 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5223 Soil Chemical Processes and Impact on Environmental Quality
Prerequisites: SOIL 4893 and CHEM 2113 or CHEM 3324 or equivalent.
Description: A comprehensive study of chemical processes applied to fate and transport of contaminants and agricultural productivity. Chemical and physical properties of soil minerals as they pertain to solution and surface chemistry. Nutrient and contaminant availability and speciation as dictated by ion exchange, precipitation/dissolution, and adsorption reactions. Review of current research in soil and environmental chemistry literature. Course previously offered as SOIL 5224.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5230 Research
Prerequisites: Consent of a faculty member supervising the research.
Description: Supervised independent research on selected topics. Offered for variable credit, 1-4 credit hours, maximum of 8 credit hours.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

SOIL 5234 Soil Nutrient Management
Prerequisites: SOIL 2124.
Description: Soil fertility and use of fertilizer materials for conservation, maintenance, and improvement of soil productivity and to minimize environmental concerns. May not be used for degree credit with SOIL 4234.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

SOIL 5353 Advanced Soil Genesis and Classification
Prerequisites: SOIL 3433.
Description: Processes and factors of soil formation. Comparison of world soil morphology and classification systems. Course previously offered as AGRN 5353.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

SOIL 5363 Environmental Soil Science
Prerequisites: BIOL 1114 or (BIOL 1113 and BIOL 1111) and SOIL 2124.
Description: Re-emphasis of soil science concepts vital in the understanding of processes that are within the realms of the ecological regulator function of the soil; discussions on the role of soil as the foundation of forest, rangeland/pastureland, agricultural, urban and suburban, as well as wetland ecosystems; impact of soil processes on global environmental concerns; soil as the ultimate recipient of waste; impact of soil processes on groundwater and surface water quality. May not be used for degree credit with SOIL 4363.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5383 Advanced Soil Microbiology
Description: A comprehensive overview of microorganisms living in the soil and their activities which are of agricultural and environmental significance. Provide experience in analytical skills related to soil microbial processes. No credit for both SOIL 4483 and SOIL 5383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5463 Soil and Water Conservation
Prerequisites: SOIL 2124.
Description: Assess the importance, quality and quantity of soil and water as natural resources for ecosystems and societies. Principles of soil erosion processes and management practices to decrease erosion in urban, cropland and rangeland systems. Understand the principles of hydrology cycle to improve water use efficiency of precipitation and irrigation resources. Examine resource mismanagement that have resulted in desertification, salinization and deforestation. May not be used for degree credit with SOIL 4463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5483 Soil Bioremediation and Sustainability
Prerequisites: SOIL 4483.
Description: Microbial activities, biodiversity, sustainability, and their interrelationships in soil and the environment. Soil enzymology, environmental sustainability, and bioremediation of agricultural and industrial chemicals, heavy metals, chlorinated organics and explosives. Formulation of strategies that promote soil productivity and environmental sustainability.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5513 Nature-based Solutions
Prerequisites: Graduate Standing
Description: Explore the definition of nature-based solutions (NbS) within environmental science and examples of current practices around the world. Examine NbS as a way to confront global environmental challenges. Utilize available guidance to suggest nature-based solutions to specific problems on a local scale. May not be used for degree credit with ENVR 4513.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5583 Soil Physics Measurement Techniques
Prerequisites: SOIL 4683.
Description: Training in field and laboratory techniques for physical analysis of soil properties and processes. Develop research proposal and conduct research project related to soil physics. Course previously offered as AGRN 5583.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

SOIL 5683 Soil, Water, and Weather
Prerequisites: SOIL 2124 and CHEM 1225.
Description: Introduction to the physics of the soil-plant-atmosphere continuum. A focus on physical properties of soil and interactions with water and weather in terrestrial ecosystems. May not be used for degree credit with SOIL 4683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5813 Soil-Plant Nutrient Cycling
Prerequisites: SOIL 4234 or equivalent.
Description: Theory and application of soil/plant nutrient cycling in production agriculture. Focus on nutrient sources, chemical, physical, and biological fluxes, plant uptake and removal mechanisms, and nutrient loss pathways. Course previously offered as AGRN 5813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5893 Environmental Soil Chemistry
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

SOIL 5894 Soil Biogeochemistry
Prerequisites: SOIL 4893 or Consent of Instructor.
Description: Foundational and emerging concepts in soil biogeochemistry with an emphasis on transformation and fates of carbon, nitrogen, and phosphorus from molecular to global scales. Discussions are focused on molecular-scale processes occurring at the interface between mineral surfaces, microbes, and plants all the way to the controls on nutrient storage and cycling at the ecosystem-scale. Student-led discussions on peer-reviewed literature and exploration of key topics in soil biogeochemistry.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Plant & Soil Sciences

SOIL 6000 Doctoral Thesis
Prerequisites: Consent of instructor.
Description: Independent research to be conducted and reported with the supervision of a major professor as partial requirement for the PhD degree. Offered for variable credit, 1-6 credit hours, maximum of 36 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

SOIL 6010 Advanced Topics and Conference
Prerequisites: MS degree.
Description: Supervised study of advanced topics. A reading and conference course designed to acquaint the advanced student with fields not covered in other courses. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Plant & Soil Sciences

SOIL 6583 Soil Physics Theory
Prerequisites: SOIL 4683 or equivalent and MATH 2233 or equivalent.
Description: Theoretical understanding and modeling skills required to analyze and predict mass and energy transport in the soil-plant-atmosphere continuum. Application of analytical and numerical models for diverse transport phenomena including water, heat, and solute transport through soil.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Plant & Soil Sciences

Spanish (SPAN)

SPAN 1713 Elementary Spanish I (F)
Description: Pronunciation, conversation, grammar, and reading. Includes language lab work. Not for native speakers per University Academic Regulation 4.9. Previously offered as SPAN 1115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 1813 Elementary Spanish II (F)
Prerequisites: SPAN 1713 or equivalent proficiency.
Description: Continuation of SPAN 1713. Includes language lab work. Not for native speakers per University Academic Regulation 4.9. Previously offered as SPAN 1225.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 1821 Medical Spanish
Prerequisites: Previously completed or concurrently enrolled in SPAN 1813
Description: This course is specifically geared to students who are taking Elementary Spanish II (SPAN 1813), and that want to pursue a career in the health professions. This means that you need to be enrolled in SPAN 1813 and Spanish for Health Care Professionals the same semester or have taken SPAN 1813 already. You will learn vocabulary, dialogs, and structure to help greet patients, take vital signs, interview to find out the chief complaint, review medical history, give a physical exam, and recommend prescriptions or follow-up instructions.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 2713 Intermediate Spanish (F)
Prerequisites: SPAN 1813 or equivalent proficiency.
Description: Further development of speaking, listening, reading, and writing skills along with short cultural and literary readings. Not for native speakers per University Academic Regulation 4.9. Previously offered as SPAN 2115.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 2723 Intermediate Hispanic Culture and Media
Prerequisites: SPAN 1813 or equivalent proficiency.
Description: Further development of language skills within Hispanic cultural contexts. May be taken concurrently with 2713 or subsequently (but not before).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 2813 Intermediate Reading and Conversation
Prerequisites: SPAN 2713 and SPAN 2723 or equivalent proficiency.
Description: Skill consolidation with emphasis on short literary readings and conversation. May be taken concurrently with SPAN 2823. Not for native speakers per University Academic Regulation 4.9. Previously offered as SPAN 2232.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 2823 Intermediate Composition and Grammar
Prerequisites: SPAN 2713 and SPAN 2723 or equivalent proficiency.
Description: Skill consolidation with emphasis on composition and grammar with some conversation. May be taken concurrently with SPAN 2813. Not for native speakers per University Academic Regulation 4.9. Previously offered as SPAN 2233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3053 Introduction to Literatures and Cultures in Spanish
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: Introduction to techniques of literary analysis and research in Spanish and to Hispanic literary history. Prerequisite for all advanced literature courses in Spanish.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3163 Literature of Medieval and Early Modern Spain
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: Development of literature in Spain from the medieval period to 1700. Previously offered as SPAN 3023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3173 Literature of Spain from 1700 to the Present
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: Development of literature in Spain from 1700 to the present. Previously offered as SPAN 3033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3183 Early Latin American Literature
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: Survey of Latin America literature in Spanish from the pre-Columbian era to the turn of the 20th century, including letters, chronicles, essays, poetry, drama, and narrative. Previously offered as SPAN 3013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3193 Modern and Contemporary Latin American Literature
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: Survey of 20th and 21st century Latin American literature in Spanish, including narrative, poetry, drama, and essays.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3203 Advanced Conversation
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: Practice in conversation skills, designed to bring students to a high level of proficiency in speaking and listening. Class conducted in Spanish.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3213 Advanced Grammar and Composition
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: Study of advanced grammar and stylistics with emphasis on composition skills, designed to bring students to a high level of proficiency in writing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3343 Business Spanish
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: Development of spoken and written Spanish for use in business and professional contexts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3363 Spanish for Healthcare Professionals
Prerequisites: 18 credits of lower-division Spanish or equivalent proficiency.
Description: This course is designed for healthcare professionals. You will learn vocabulary, dialogs, and structure to help greet patients, take vital signs, interview for symptoms, review medical history, give a physical exam, and recommend prescriptions or follow-up instructions. Although by no means comprehensive, the course will provide a starting point for communicating with Spanish-speaking patients. Cultural notes will be provided to assist in making patients more comfortable.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3403 Introduction to Hispanic Linguistics
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: This course provides an introduction to the scientific study of language and its structure and includes introductions to the fields of pragmatics, phonology, sociolinguistics, historical linguistics, and applied linguistics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 3463 Spanish Phonetics and Phonology
Prerequisites: 18 hours of Spanish or equivalent proficiency.
Description: In this course students will examine the phonetic and phonological systems of Spanish as well as the extensive diatectal and sociolinguistic variation of these sounds in the Spanish-speaking world and among learners of Spanish.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4123 Hispanic Poetry
Prerequisites: One 3000 level Spanish literature course.
Description: Detailed study of representative poetry from Spain or Latin America.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4133 Hispanic Prose
Prerequisites: One 3000 level Spanish literature course.
Description: Detailed study of representative prose works from Spain or Latin America.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4143 Short Novels in Hispanic Literature
Prerequisites: One 3000-level Spanish literature course.
Description: Reading and analysis of classics selected from the Hispanic literatures written in Spanish. Examine the different literary movements, social and historical courses that influenced the novels, as well as the theoretical models about them. Because of the close connection to Cinema and Theater, the readings will be compared to their cinematic adaptations and to other artistic genres.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4163 Don Quijote
Prerequisites: One 3000 level Spanish literature course.
Description: Seminar devoted to Cervantes' novel.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4173 Hispanic Drama
Prerequisites: One 3000 level Spanish literature course.
Description: Reading and interpretation of dramatic works selected from the Hispanic literatures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4183 Spain and Islam
Prerequisites: One 3000 level Spanish literature course.
Description: An in depth study of conflict and coexistence among Christian and Islamic cultures in Spain from the eighth century to the present day. The course includes both literary and historical readings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4193 Hispanic Film
Prerequisites: One 3000 level Spanish literature course.
Description: Study of Spanish and/or Latin American films from cultural, historical, and artistic perspectives.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4203 Hispanic Music
Prerequisites: One 3000-level Spanish literature course.
Description: Critically interpret songs (their music and lyrics), identify the periods during which they were produced and their style, and related them to each other. Recognize and analyze the main cultural movements, historical events, and figures that shaped the development of Hispanic Music as it is represented in music production.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4213 Short Stories in Hispanic Literature
Prerequisites: One 3000-level Spanish literature course.
Description: Reading and analysis of classics selected from the Hispanic literatures written in Spanish. Examine the different literary movements, social and historical causes that influenced the Short Stories, as well as the theoretical models about them. Critically analyze texts, identify their periods and style, and relate them to each other. Recognize and analyze the chief literary movements, historical events, and figures that shaped the development of the stories.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4223 Contemporary Hispanic Literature
Prerequisites: One 3000 level Spanish literature course.
Description: Major Hispanic writers since 1900.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4253 Masterpieces of Hispanic Literature I
Prerequisites: One 3000 level Spanish literature course.
Description: Reading and analysis of classics selected from the Hispanic literatures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4263 Masterpieces of Hispanic Literature II
Prerequisites: One 3000 level Spanish literature course.
Description: Reading and analysis of classics selected from the Hispanic literatures.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4323 Culture and Civilization of Spain
Prerequisites: One 3000 level Spanish course.
Description: Reading and discussion of selected texts outlining the development of the culture and civilization of Spain. Previously offered as SPAN 3333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4333 Culture and Civilization of Latin America
Prerequisites: One 3000 level Spanish course.
Description: Reading and discussion of selected texts outlining the development of contemporary Hispanic civilization of the Americas.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4413 Advanced Stylistics
Prerequisites: SPAN 3213.
Description: Continuation of SPAN 3213, emphasizing further development of grammar and composition in a variety of contexts.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4443 History of the Spanish Language
Prerequisites: One 3000-level Spanish course.
Description: This course provides an introduction to the origins and linguistic development of the Spanish language from its Latin roots to Modern Spanish.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4453 Voices of US Spanish: Identity and Variation
Prerequisites: One 3000 level Spanish course.
Description: This course provides an in-depth exploration of the Spanish language as it is spoken and used in the United States, drawing on sociolinguistic, cultural, and historical perspectives. Students will examine the dynamic nature of Spanish in various U.S. communities, with special attention to the unique sociolinguistic landscape of Spanish in Oklahoma. The course will cover topics such as language contact, bilingualism, code-switching, language maintenance, and the role of Spanish in shaping Latino identities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Foreign Lang & Lit

SPAN 4463 Sociolinguistics of the Spanish-Speaking World
Prerequisites: One 3000-level Spanish course.
Description: In this course students will investigate the variation of the Hispanic language as well as the linguistic features of Spanish as a result of Spanish in contact with other languages. Phonetic/phonologic, morphologic, syntactic, and lexical features of Spanish will be examined in relation to broader geographical, social, political, cultural, and historical contexts of the Spanish-speaking world.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 4550 Seminar in Spanish
Prerequisites: One 3000-level Spanish course, or equivalent.
Description: Readings and discussion of vital subjects in Spanish. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Languages and Literatures

SPAN 4650 Topics in Spanish
Prerequisites: One 3000-level Spanish course, or equivalent.
Description: In depth study of a specific aspect of Hispanic literature, culture or language. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Lecture: 1-9 Contact: 1-9
Levels: Undergraduate
Schedule types: Lecture
Department/School: Languages and Literatures

SPAN 5110 Advanced Hispanic Studies
Prerequisites: 22 hours of Spanish or graduate standing in foreign language.
Description: Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Languages and Literatures

Special Education (SPED)

SPED 3202 Educating Exceptional Learners
Description: Learning characteristics, needs and problems of educating the exceptional learner in the public schools. Implications of the learning, environmental and cultural characteristics; planning and program assistance available for accommodating the exceptional learner in regular and special education programs; observation of exceptional learners. Previously offered as ABSE 3202.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Teaching, Learning, Ed Science

SPED 3623 Characteristics of Students with Mild/Moderate Disabilities
Prerequisites: SPED 3202.
Description: Educational, psychological, and physiological characteristics of individuals with mild and moderate disabilities. Professional roles of the teacher, professional ethics, and assessment of children with disabilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 3683 Models of Instruction in the Inclusive Classroom
Description: Current techniques, models, and approaches used to teach students with mild-moderate disabilities and the theoretical bases for these techniques and approaches in inclusive classrooms will be presented.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 3743 Planning, Compliance, and Current Practices in SPED
Prerequisites: SPED 3202 Teaching Exception Children.
Description: Examination of current and past policies and procedures that govern identification, referral, eligibility, and Individualized Education Programs of PK-12 students with disabilities. Current practices for planning and implementing instruction within a continuum of service delivery models. May not be used for degree credit with SPED 5743.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 4703 Techniques of Function Based Interventions
Description: Explores the field of inquiry devoted to investigating factors that influence behavior in a systematic way. Preservice teachers will acquire knowledge about behavioral interventions for students with, and at-risk for, mild/moderate disabilities in special and general education environments. This course is essential to prepare preservice teachers in the competencies mandated in the Oklahoma Teacher Preparation Act (2021).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 4723 Transition Into Adulthood for Individuals with Disabilities
Description: Strategies for preparing youth and young adults with disabilities for transitioning into adulthood. Previously offered as ABSE 4723. May not be used for degree credit with SPED 5723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 4733 Differentiating Mathematics Instruction for Students with Disabilities
Description: Prepares preservice teachers to design and implement mathematics interventions for students with math difficulties/disabilities. This course is essential to prepare preservice teachers in the competencies mandated by the Math Achievement and Proficiency Act (2025) and the Oklahoma Teacher Preparation Act (2021).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 4743 Teaching Foundational Reading Skills to Learners with Disabilities
Description: Prepares preservice teachers to teach beginning reading skills to a range of learners. The course emphasizes the implementation of research-based instructional practices to meet the needs of K-12 learners with reading difficulties/disabilities. This course is essential to prepare preservice teachers in the competencies mandated in the Strong Readers Act of Oklahoma and the Oklahoma Teacher Preparation Act.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 4753 Multi-tiered Classroom and Behavior Management
Description: Classroom and behavior management strategies designed to improve learning and behavior within instructional settings using multi-tiered systems of support. Previously offered as ABSE 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 4763 Differentiating Reading Instruction for Learners with Disabilities
Description: Prepares future teachers to design and differentiate reading instruction for learners with a range of reading profiles including learners with and at-risk for reading disabilities (e.g., dyslexia). This course is essential to prepare preservice teachers in the competencies mandated in the Strong Readers Act of Oklahoma and the Oklahoma Teacher Preparation Act.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5000 Master's Thesis
Description: Previously offered as ABSE 5000. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPED 5123 Characteristics and Teaching Methods for Students with Autism Spectrum Disorders
Prerequisites: Graduate standing or permission of instructor.
Description: Designed to provide a foundation for understanding educational and psychological theory and best practices used in teaching students with Autism Spectrum Disorders (ASD). Characteristics and diagnostic procedures of ASD will be introduced, as well as such teaching methods as incidental teaching, visual supports, workstations, discrete trial teaching, and social stories.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5150 Seminar in Special Education
Description: Seminar topics will differ depending on interests and topics regarding Special Education. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Lecture: 1-6 Contact: 1-6
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5320 Seminar in Applied Behavioral Studies
Description: In-depth exploration of contemporary problems of applied behavioral studies. Offered for variable credit, 1-24 credit hours, maximum of 24 credit hours.
Credit hours: 1-24
Contact hours: Lecture: 1-24 Contact: 1-24
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5573 Communication Strategies for Individuals with Severe and Profound Disabilities
Description: Methods for communicating with severely or profoundly disabled persons and for facilitating their communication through speech, sign, assistive devices and technology.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5620 Practicum with Exceptional Learners
Prerequisites: Consent of instructor.
Description: Supervised individual and group experience with exceptional learners. The particular experience (learning disability, mental retardation, gifted, etc.) determined by the student's field of specialization. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPED 5623 Characteristics of Students with Mild/Moderate Disabilities
Description: Educational, psychological and physiological characteristics of individuals with mild and moderate disabilities. Professional roles of the teacher, professional ethics, and assessment of children with disabilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science
Additional Fees: EHS Outreach Tuition and fee of $299 per credit hour applies.

SPED 5633 Behavior Characteristics of Exceptional Individuals
Description: Individual differences and problems that exceptional individuals experience. Educational programs and resources available to assist administrators, teachers and parents in dealing with unique individual needs. Previously offered as ABSE 5633.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5643 Working with Families of Students with Diverse Needs
Description: Aiding the classroom teacher and other professional personnel in the understanding of unique needs, cultural factors, and interpersonal relations involved in working with families of exceptional children and stakeholders. Previously offered as ABSE 5643.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5673 Improving Literacy Skills of Individuals with Disabilities
Description: Normal language development and variations from norms demonstrated by exceptional learner. Assessment techniques and intervention strategies appropriate for exceptional infants and children; theoretical approaches to language training, formal and informal; assessment techniques and techniques for exceptional individuals. Previously offered as ABSE 5673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science
Additional Fees: EHS Outreach Tuition and fee of $299 per credit hour applies.

SPED 5683 Models of Instruction in the Inclusive Classroom
Description: Current techniques, models and approaches used to teach students with mild-moderate disabilities and the theoretical bases for these techniques and approaches in inclusive classrooms will be presented. Previously offered as ABSE 5683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5723 Transition Into Adulthood for Individuals with Disabilities
Description: Strategies for preparing youth and young adults with disabilities for transitioning into adulthood. May not be used for degree credit with SPED 4723.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5733 Teaching Strategies for Students with Physical and Health Disabilities
Prerequisites: SPED 5523 and graduate student standing.
Description: Design and implementation of educational programs, collaboration with families and other professionals, and advocacy for students with disabilities. Previously offered as ABSE 5733.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5743 Planning, Compliance and Current Practices
Description: Current practices for planning and implementing instruction within a continuum of service delivery models. Examination of current and past policies and procedures that govern identification, referral, eligibility, and individualized Education Programs of PK-12 students with disabilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science
Additional Fees: EHS Outreach Tuition and fee of $299 per credit hour applies.

SPED 5783 Assessing Students with Disabilities
Description: The practice and practicality of the assessment process used in schools for students with disabilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5883 Classroom and Behavior Management
Description: Classroom and behavior management strategies designed to improve learning and behavior within instructional settings. Previously offered as ABSE 5883.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 5993 Culturally Responsive Teaching in Special Education
Description: Examination of the influence of ethnic, socioeconomic class, and gender factors on students with disabilities. Teaching attitudes and expectations, and curricular and instructional strategies for improving students' school performance.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 6000 Doctoral Thesis
Description: Required of all candidates for doctorate in applied behavioral studies. Credit given upon completion and acceptance of thesis. Previously offered as ABSE 6000. Offered for variable credit, 1-12 credit hours, maximum of 25 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPED 6183 Legal Aspects in Special Education
Description: Familiarization and analysis of legal rights and responsibilities of students, educators, and administrators in special education; federal and state mandates, case law and recent legal developments affecting special education. Previously offered as ABSE 6183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 6543 School and Interagency Collaboration
Prerequisites: Graduate student status or instructor permission.
Description: An advanced course to examine models for interdisciplinary teamwork in the design, delivery and evaluation of services for students with disabilities and at risk. Both school-based and interagency collaborative services and strategies for communicating with multiple stakeholders are emphasized.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 6603 Current Trends and Issues in Special Education
Description: Current research and literature regarding the education of exceptional children. Previously offered as ABSE 6603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 6743 Single Subject Design in Special Education
Prerequisites: Consent of instructor.
Description: Conduct research utilizing single subject and single case study design with emphasis on special education. Advanced procedures in single subject research methodology, including design strategies and experimental control are emphasized.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Teaching, Learning, Ed Science

SPED 6850 Directed Reading
Prerequisites: Consent of instructor.
Description: Directed reading for students with advanced graduate standing. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

SPED 6880 Internship in Education
Description: Directed off-campus experiences designed to relate ideas and concepts to problems encountered in the management of the school program. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Teaching, Learning, Ed Science

Speech Communications (SPCH)

SPCH 2713 Introduction to Speech Communication (S)
Description: The practical and theoretical examination of the process of human communication involving a variety of contexts, including interpersonal relationships, small group discussions, and public speaking performances.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior
Additional Fees: Cowboy Concur OL NRes Tuition fee of $300 per credit hour, Cowboy Concur OL Res Tuition fee of $189.10 per credit hour, and STW HS Concurrent Enroll Tuit fee of $189.10 per credit hour apply.

SPCH 2890 Honors Experience in Speech
Prerequisites: Honors Program participation and concurrent enrollment in a designated SPCH course.
Description: A supplemental Honors experience in Speech Communication to partner concurrently with designated SPCH course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Honors Credit

SPCH 3703 Small Group Communication
Description: General systems approach to small group processes. Special consideration given to group roles, norms, leadership and decision-making. Participation in various types of discussion groups.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

SPCH 3723 Business and Professional Communication
Description: Oral communication encounters in business and professional settings. The interview, informative briefing, talking-paper, small group interaction and informative, integrative and persuasive speeches.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

SPCH 3733 Elements of Persuasion (S)
Description: An examination of current theory and research relevant to the process of persuasion and social influence in interpersonal, small group, mass media, and public settings. Includes a discussion of the practical implications of effective and ineffective persuasive strategies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

SPCH 3743 Advanced Public Speaking
Description: The preparation and delivery of various types of public speeches.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

SPCH 3793 Communication in Interviews
Description: General principles of interviewing. Specific guidelines for the interviewer in survey, journalistic, counseling, selection, appraisal, legal, medical, and sales interviews.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

SPCH 3890 Advanced Honors Experience in Speech
Prerequisites: Honors Program participation and concurrent enrollment in a designated SPCH course.
Description: A supplemental Honors experience in Speech Communication to partner concurrently with designated upper-division SPCH course(s). This course adds a different intellectual dimension to the designated course(s). Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Honors Credit

SPCH 4010 Independent Study in Speech Communication
Prerequisites: Consent of instructor.
Description: Supervised research projects in speech communication. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Psychology

SPCH 4710 Topics in Speech Communication
Description: Selected current topics in speech communication. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Psychology

SPCH 4743 Problems of Interpersonal Speech Communication
Description: Application of communication theory to interactions in person-to-person settings. Identification and management of barriers related to the concepts of perception, attraction, self-disclosure, listening and conflict.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

SPCH 4753 Intercultural Communication (G)
Description: Social and cultural differences between individuals from diverse backgrounds as possible barriers to effective communication.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: International Dimension

SPCH 4763 Organizational Communication
Description: The interface between communication theory and organizational structure. Nature of communication problems in organizations, strategies for overcoming such problems and the design of effective communication systems in organizational settings.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology

SPCH 4793 Nonverbal Communication (S)
Description: The study of current theory and research relevant to nonverbal behavior in interpersonal and professional relationships. Includes an examination of various nonverbal codes (e.g., body language, facial expressions) and the functions of nonverbal behavior (e.g., emotional expression, deception).
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Psychology
General Education and other Course Attributes: Society & Human Behavior

Sports Media (SPM)

SPM 1883 Introduction to eSports
Description: This course introduces students to eSports. Students will learn about this history of eSports, the rapidly growing world of gaming, genres, streaming, lifestyle, careers, and the various eSports communities to understand how their different roles affect each other. We will begin to explore ways in which eSports are deeply rooted within media and broadcasting. Students will be able to demonstrate their ability to work as a group through team building exercises and effective team communication.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SPM 2843 Sports and the Media
Prerequisites: Departmental majors only.
Description: An introductory course for sports media majors and an examination of the multibillion-dollar global sports industry. This course examines the state of the industry and professional careers associated with it. Topics include the evolution of sports media, racial, gender and inclusiveness issues in sports, multimedia sports journalism and ethics in the 21st century, sports communications and sports marketing. Course previously offered as JB 2843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SPM 3500 Sports Media Internship
Prerequisites: SPM 3813 and MMJ 3153 or (SC 3353 and SC 3753) with a grade of "C" or better and consent of instructor; and pass proficiency review.
Description: Internship practice for qualified sports media students who seek creative communications experience beyond that available in the classroom. Internships must be approved prior to counting hours worked. Must work sixty or more hours for each credit hour up to three credit hours for each individual internship. Course previously offered as JB 3500. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

SPM 3813 Sports Reporting for Multimedia
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or higher in both; and pass proficiency review.
Description: Provides an introductory reporting course specifically for aspiring professionals of major sectors of the multimedia sports industry (i.e., television, internet, public relations, newspapers, radio, social media and magazines). Students learn the basics of game summaries, keeping accurate statistics, conducting interviews, structuring print and electronic media stories, incorporating quotes in sports media content, all while adhering to AP style and ethical standards of journalism and communications professions.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm
Additional Fees: SPM 3813 AP Stylebook fee of $5.30 applies.

SPM 3843 Contemporary Sports Issues
Description: This class will examine ethical and cultural considerations of the sports media as they pertain to case studies in sports promotion, NIL (Name, Image, and Likeness), sports gambling, drugs in sports, athletes and crime, privacy of athletes, gender and race in sports, international sports, labor issues in sports, and how the Internet is changing sports coverage.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SPM 3863 Advanced Sports Reporting for Multimedia
Prerequisites: MMJ 3153 and SPM 3813 each with a grade of “C” or better; and pass proficiency review.
Description: Course builds upon SPM 3813 skills with introduction of sports anchoring skills, studio “sports debate” programs, extended audio stories (features and mini-podcasts) and video packages with companion print stories. Students will contribute these stories to student media productions and outlets. The course also discusses use of social media for professional purposes, online content creation, and current topics impacting multimedia sports journalism and professional ethics.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm

SPM 3880 Topics in eSports
Description: Special topics in the field of eSports such as: eSports history, on-air talent, broadcasting, competition management, program coordination, brand management, promotion and advertising. Course content varies by semester. Each topic covered in the course is intended broaden students' horizons on the scope of, and ability to participate in, the eSports universe. No credit for students with previous credit for this course with same subtitle. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SPM 4053 Sports Announcing
Prerequisites: MMJ 3153 and SPM 3813 with a grade of “C” or better; and pass proficiency review.
Description: Focuses on theory and practice of electronic media sports coverage, with an emphasis on the role, skills and practices of radio, TV, and online sports announcers. The class includes simulated play-by-play broadcasts and a class project. Course previously offered as JB 4053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SPM 4560 Specialized Sports Media Applications
Prerequisites: SPM 2843 and SPM 3813 and MMJ 3153; each with a grade of "C" or better; and pass proficiency review.
Description: Professional sports media at an advanced level. Special topics in areas such as sports media production, announcing, performance; sports feature, column and editorial writing. Course content varies by semester. No credit for students in MC 5560 during same semester or with same subtitle. Course previously offered as JB 4560. Offered for fixed 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

SPM 4813 Sports Media Production
Prerequisites: SPM 2843 and SPM 3813 and MMJ 3153; each with a grade of “C” or better; and pass proficiency review.
Description: This course teaches creative editing and storytelling techniques specifically for the sports industry. Students produce promos, create highlight videos, and learn new software that is commonly used in the profession. Previously offered as JB 4813.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SPM 4833 Sports Information
Prerequisites: SC 3353 or SPM 3813 with a grade of "C" or higher; and pass proficiency review.
Description: This course teaches skills needed to work in the sports information or sports public relations fields, particularly at the college level. Students will learn to write about a wide variety of collegiate sports while applying AP Style, proper grammar and effective storytelling. Students will also gain hands-on experience using social media in the sports information field.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SPM 4853 Advanced Sports Writing
Prerequisites: SPM 2843 and SPM 3813 and MMJ 3263 with a grade of "C" or better in each; and pass proficiency review.
Description: Advanced sports writing and reporting, which includes a wide variety of writing and reporting assignments, leading to an emphasis on enterprise and investigative reporting, as well as long-form features. Final projects should be of such quality to serve as the lead products in individual student portfolios. Same course as JB 3853 and SPM 3853.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm

SPM 4883 Sports Media Capstone
Prerequisites: SPM 3863 and MMJ 4393 each with a grade of "C" or better in both; and pass proficiency review.
Description: Capstone course for multimedia sports majors, giving them the opportunity to apply the skills they have learned to a final project that will be coordinated with a media outlet with the goal of publication. In addition, students will work on writing for print and electronic media, multimedia sports programming, management skills, and ethics and cultural issues in sports media. Course previously offered as JB 4883.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

Statistics (STAT)

STAT 1013 Statistical Literacy (Q)
Prerequisites: An acceptable placement score (see placement.okstate.edu).
Description: This course focuses on statistical concepts and conclusions rather than on computations. Topics include descriptive measures, graphical representations, measures of center and variability, discussion of variability, sampling techniques, conditional probability interpretation and ramifications, confidence interval interpretation, practical vs. statistical significance, formulation and interpretation of hypothesis testing and p-values.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics
General Education and other Course Attributes: Analytical & Quant Thought

STAT 2013 Elementary Statistics (Q)
Prerequisites: MATH 1483 or higher, except MATH 1493, with a grade of "C" or better; or an acceptable placement score (see mathplacement.okstate.edu).
Description: An introductory course in the theory and methods of statistics. Descriptive measures, elementary probability, sampling, estimation, hypothesis testing, correlation and regression. Same course as STAT 2023 or STAT 2053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics
General Education and other Course Attributes: Analytical & Quant Thought
Additional Fees: STAT 2013 Corequisite Lab fee of $90 applies.

STAT 2023 Elementary Statistics for Business and Economics (Q)
Prerequisites: MATH 1483 or higher, except MATH 1493, with a grade of "C" or better; or an acceptable placement score (see mathplacement.okstate.edu).
Description: Basic statistics course for undergraduate business majors. Descriptive statistics, basic probability, discrete and continuous distributions, point and interval estimation, hypothesis testing, correlation and simple linear regression. Same course as STAT 2013 or STAT 2053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics
General Education and other Course Attributes: Analytical & Quant Thought

STAT 2053 Elementary Statistics for the Social Sciences (Q)
Prerequisites: MATH 1483 or higher, except MATH 1493, with a grade of "C" or better; or an acceptable placement score (see mathplacement.okstate.edu).
Description: An introductory course in the theory and methods of statistics. Descriptive measures, elementary probability, sampling, estimation, hypothesis testing, correlation and regression. Same course as STAT 2013 or STAT 2023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics
General Education and other Course Attributes: Analytical & Quant Thought

STAT 2331 SAS Programming
Prerequisites: A different programming language or consent of instructor.
Description: SAS as a general purpose programming language, data representation, input/output, use of built-in procedures, report generation. Course previously offered as CS 2331.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 2890 Honors Experience in Statistics
Prerequisites: Honors Program participation and concurrent enrollment in a designated STAT course.
Description: A supplemental Honors experience in statistics to partner concurrently with designated statistics courses. This course adds a different intellectual dimension to the designated courses. Offered for fixed credit, 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics
General Education and other Course Attributes: Honors Credit

STAT 3013 Intermediate Statistical Analysis
Prerequisites: STAT 2013, STAT 2023 or STAT 2053.
Description: Applications of elementary statistics, introductory experimental design, introduction to the analysis of variance, simple and multiple linear regression, nonparametric statistics, survey sampling and time series. Data analysis using Excel included.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 3023 Statistical Reasoning for Medical Applications (Q)
Prerequisites: MATH 1483 or MATH 1513 or higher on an acceptable math placement score. See mathplacement.okstate.edu.
Description: This course focuses on developing the quantitative skills necessary for success in medical school and related activities. Topics include study design, descriptive measures, graphical representations, basic probability, statistical inference, correlation and regression, contingency tables.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics
General Education and other Course Attributes: Analytical & Quant Thought

STAT 3033 Sports Analytics (Q)
Prerequisites: Any of the following: MATH 1483, or MATH 1513, or an equivalent college algebra course, or math placement score of 50 or higher.
Description: This course focuses on developing the quantitative skills necessary to analyze both sports performance metrics and sports business data. Topics include introduction to data ecosystems, building relational databases. data visualization techniques, computation and evaluation of performance metrics, exploring statistical relationships, predictive modelling, analytics in sports marketing. and data-driven decision-making in sports management.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics
General Education and other Course Attributes: Analytical & Quant Thought

STAT 4013 Statistical Methods I (Q)
Prerequisites: MATH 1513 or higher, with a grade of "C" or better; or an acceptable placement score (see mathplacement.okstate.edu).
Description: Basic experimental statistics, basic probability distributions, methods of estimation, tests of significance, linear regression and correlation, analysis of variance for data that are in a one way, a two-way crossed, or in a two-fold nested classification. Same course as STAT 4053.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics
General Education and other Course Attributes: Analytical & Quant Thought

STAT 4023 Statistical Methods II
Prerequisites: STAT 3013 or STAT 4013 or STAT 4033 or STAT 4053.
Description: Basic concepts of experimental design. Analysis of variance, covariance, split-plot design. Factorial arrangements of treatments, multiple regression in estimation and curvilinear regression, enumeration data. May not be used for degree credit with STAT 4063 or STAT 5563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4033 Engineering Statistics
Prerequisites: MATH 2133 or MATH 2163.
Description: Probability, random variables, probability distributions, estimation, confidence intervals, hypothesis testing, linear regression. No degree credit for students with credit in STAT 4073.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4043 Applied Regression Analysis
Prerequisites: One of STAT 4013, STAT 4033, STAT 4053, STAT 5013 or equivalent.
Description: Matrix algebra, simple linear regression, residual analysis techniques, multiple regression, dummy variables, interactions, model building, introduction to logistic regression. This course explains fundamentals of linear regression and provides an introduction to logistic regression. May not be used for degree credit with STAT 5543.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4053 Statistical Methods I for the Social Sciences (Q)
Prerequisites: MATH 1513 or higher, with a grade of "C" or better; or an acceptable placement score (see mathplacement.okstate.edu).
Description: Basic experimental statistics, basic probability distributions, methods of estimation, tests of significance, linear regression, calculation and analysis of variance for one and two-way classifications. Same course as STAT 4013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics
General Education and other Course Attributes: Analytical & Quant Thought

STAT 4063 Statistical Methods II for the Social Sciences
Prerequisites: STAT 3013 or STAT 4013 or STAT 4033 or STAT 4053.
Description: Basic concepts of experimental design. Analysis of variance, covariance, split-plot design. Factorial arrangements of treatments, multiple and curvilinear regression, enumeration data. May not be used for degree credit with STAT 4023 and STAT 5563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4073 Engineering Statistics with Design of Experiments
Prerequisites: MATH 2163.
Description: Random variables and basic probability distributions, estimation, confidence intervals, hypothesis testing, basic analysis of variance, factorial arrangement of treatments and fractional factorial experiments, elementary quality control. No degree credit for students with credit in STAT 4033.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4091 Sas Programming
Prerequisites: STAT 4013 or equivalent.
Description: SAS dataset construction, elementary statistical analysis, and use of statistics and graphics procedures available in SAS. No credit for students with credit in STAT 5091.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4123 Probability Theory
Prerequisites: MATH 2163 and either MATH 2233 or MATH 3013.
Description: Basic probability, including conditional, marginal, and joint distributions. Random variables, moments, independences and dependence, common distributions, and distributions of functions of random variables.Course explains probability calculations, the usefulness of probability, and fundamentals required for obtaining sampling distributions. Useful in preparing for the actuarial P exam. May not be used for degree credit with STAT 4203, STAT 5123 and STAT 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4191 R Programming
Prerequisites: STAT 4013 or equivalent.
Description: R dataset construction, elementary statistical analysis, and use of statistics and graphics with R. May not be used for degree credit with STAT 4193, STAT 5191, STAT 5193.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4193 SAS and R Programming
Prerequisites: STAT 4013 or equivalent.
Description: SAS and R dataset construction, elementary statistical analysis, and use of statistics and graphics with SAS and R. May not be used for degree credit with STAT 4091, STAT 4191, STAT 5091, STAT 5191, STAT 5193.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4203 Mathematical Statistics I
Prerequisites: MATH 2163 with a grade of "C" or better.
Description: Probability, random variables such as Poisson, Geometric, Hypergeometric, Uniform, Normal, Gamma, Beta, Exponential and their distributions, independence and correlation, multivariate distributions, marginal and conditional probabilities, functions of random variables, order statistics and their distributions, moment generating functions, the Central Limit Theorem. May not be used for degree credit with STAT 4123 and STAT 5253.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4213 Mathematical Statistics II
Prerequisites: STAT 4203 or STAT 4123.
Description: Methods of estimating population parameters such as point and confidence interval estimation for a mean, proportion, and the difference between means and proportions, maximum likelihood methods, method of moments, hypothesis testing and its applications, sample size estimation, linear regression models, and categorical data analysis. May not be used for degree credit with STAT 5263.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4463 Statistical Machine Learning with R
Prerequisites: STAT 4043.
Description: Computationally intense statistical methods for prediction and classification with R. Topics are bias-variance tradeoff; prediction and classification error; cross validation; bootstrapping; linear and logistic regression; discriminant functions; k-nearest neighbors; local and spline-based regression; generalized additive models; model selection and regularization; support vector machines; decision trees; principle component analysis; cluster analysis. May not be used for degree credit with STAT 5063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4910 Special Studies
Prerequisites: Consent of instructor.
Description: Special subjects in statistics. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Statistics

STAT 4980 Internship in Statistics
Prerequisites: Consent of instructor.
Description: Directed practicum or internship experience in a Statistics-related professional work setting. Students must have an approved internship that will provide statistical experience beyond that available in the classroom. Students produce written analyses of their work and learning under the guidance of the instructor and internship site supervisor. Offered for variable credit, 1-12 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Statistics

STAT 4981 Statistics Capstone I
Prerequisites: STAT 4023, STAT 4043, STAT 4091 or STAT 4193; and STAT 4203 or concurrent enrollment.
Description: Information and preparation for graduate school for statistics undergraduates, communication skills for collaborating with scientists, introduction to research in statistics.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4991 Statistics Capstone II
Prerequisites: STAT 4023 and STAT 4043 and STAT 4091 or STAT 4193; and STAT 4203 or concurrent enrollment.
Description: Career skills for statistics undergraduates entering the workforce, communication skills for collaborating with scientists.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Statistics

STAT 4993 Senior Honors Project
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors project under the direction of a faculty member, with a second faculty reader and an oral examination. Required for graduation with departmental honors in statistics.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Statistics
General Education and other Course Attributes: Honors Credit

STAT 5000 Master's Research
Prerequisites: Consent of advisory committee.
Description: Methods of research and supervised thesis or report. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Statistics

STAT 5002 Applied Masters Creative Component
Prerequisites: Consent of advisory committee.
Description: Creative component for Applied Masters in Statistics.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Graduate
Schedule types: Independent Study
Department/School: Statistics

STAT 5003 Statistics for Medical Residents
Prerequisites: Employed as a medical or veterinary resident or permission of instructor.
Description: Survey of statistical methodology relevant to health care professionals. Basic understanding of statistics presented in recent medical literature. Hypothesis testing, ANOVA techniques, regression, categorical techniques. Same course as BIOM 5003.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5013 Statistics for Experimenters I
Prerequisites: Graduate standing and MATH 1513.
Description: Introductory statistics course for graduate students. Descriptive statistics, basic probability, estimation, hypothesis testing, p-values, analysis of variance, multiple comparisons, correlation and linear regression, categorical data analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5023 Statistics for Experimenters II
Prerequisites: Graduate standing and STAT 4023 or STAT 5013.
Description: Analysis of variance, contrasts and multiple comparisons, factorial experiments, variance components and their estimation, completely randomized, randomized block and Latin square designs, split plot experiments.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5033 Nonparametric Methods
Prerequisites: One of STAT 4023, STAT 4043, STAT 5023 or consent of instructor.
Description: A continuation of STAT 4013 and STAT 4023, concentration on nonparametric methods. Alternatives to normal-theory statistical methods; analysis of categorical and ordinal data, methods based on rank transforms, measures of association, goodness of fit tests, order statistics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5043 Sample Survey Designs
Prerequisites: One of STAT 4013, STAT 4033, STAT 5013 or consent of instructor.
Description: Constructing and analyzing personal, telephone and mail surveys. Descriptive surveys including simple random, stratified random designs. Questionnaire design, frame construction, non-sampling errors, use of random number tables, sample size estimation and other topics related to practical conduct of surveys.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5053 Time Series Analysis
Prerequisites: STAT 4043.
Description: An applied approach to the analysis of time series in the time domain. Trends, autocorrelation, random walk, seasonality, stationarity, autoregressive integrated moving average (ARIMA) processes, Box-Jenkins method, forecasting.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5063 Statistical Machine Learning with R
Prerequisites: STAT 5543.
Description: Computationally intense statistical methods for prediction and classification with R. Topics are bias-variance tradeoff; prediction and classification error; cross validation; bootstrapping; linear and logistic regression; discriminant functions; k-nearest neighbors; local and spline-based regression; generalized additive models; model selection and regularization; support vector machines; decision trees; principle component analysis; cluster analysis. May not be used for degree credit with STAT 4463.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5073 Categorical Data Analysis
Prerequisites: STAT 5223, STAT 5023 or equivalent or concurrent enrollment.
Description: Analysis of data involving variables of a categorical nature. Independence/association test for contingency tables, exact tests for small counts, generalized linear models, logistic regression models for binary response variables, loglinear models for count data, analyses of ordinal variables, multicategory logit models for multiple category responses, and applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5083 Statistics for Biomedical Researchers
Prerequisites: STAT 5013.
Description: Analysis of variance, experimental designs pertaining to medical research, regression and data modeling, categorical techniques and the evaluation of diagnostic tests. No credit for students with credit in STAT 5023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5091 Sas Programming
Prerequisites: STAT 5013 or equivalent.
Description: SAS dataset construction, elementary statistical analysis, and use of statistics and graphics procedures available in SAS. No credit for students with credit in STAT 4091.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5093 Statistical Computing
Prerequisites: STAT 5223.
Description: Random variable generation; numerical calculations of maximum likelihood estimators, computer intensive exact tests; randomized tests; bootstrap and cross validation methods, Monte Carlo integration and simulation; Markov Chain Monte Carlo methods for Bayesian estimation.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5123 Probability Theory
Prerequisites: MATH 2163 and one other course in MATH that has either MATH 2144 or MATH 2153 as a prerequisite.
Description: Basic probability, including conditional, marginal, and joint distributions. Random variables, moments, independences and dependence, common distributions, and distributions of functions of random variables. Course explains probability calculations, the usefulness of probability, and the fundamentals required for obtaining sampling distributions. Useful in preparing for the actuarial P exam.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5133 Stochastic Processes
Prerequisites: STAT 5123 and MATH 2233, MATH 3013.
Description: Definition of a stochastic process, probability structure, mean and covariance function, the set of sample functions, stationary processes and their spectral analyses, renewal processes, counting processes, discrete and continuous Markov chains, birth and death processes, exponential model, queuing theory. Same course as IEM 5133 & MATH 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5191 R Programming
Prerequisites: STAT 4013 or STAT 5013.
Description: R dataset construction, elementary statistical analysis, and use of statistics and graphics with R. May not be used for degree credit with STAT 4191, STAT 4193, STAT 5193.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5193 SAS and R Programming
Prerequisites: STAT 5013 or equivalent.
Description: SAS and R dataset construction, elementary statistical analysis, and use of statistics and graphics with SAS and R. May not be used for degree credit with STAT 4091, STAT 4191, STAT 4193, STAT 5191, STAT 5091.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5213 Bayesian Analysis
Prerequisites: STAT 5123 or STAT 5253 or STAT 4203 or consent of instructor.
Description: Bayes rule, fundamentals of Bayesian statistics, conjugate priors, posterior and predictive inference. Markov chain Monte Carlo, computation and software, hierarchical models, convergence diagnostics, Bayes factor, nonparametric Bayes.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5223 Statistical Inference
Prerequisites: STAT 5123 and MATH 3013.
Description: Convergence concepts, Central Limit Theorem, sampling distributions, point estimation, maximum likelihood methods, Bayesian estimation, Cramer-Rao lower bound, confidence intervals. Hypothesis testing including Neyman-Pearson tests, uniformly most powerful tests, and generalized likelihood ratio tests. Course derives and explains testing and estimation included in introductory statistics courses. Useful for understanding assumptions and theory in common statistical methods. Previously offered as STAT 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5253 Mathematical Statistics I
Prerequisites: MATH 2163 with a grade of "C" or better.
Description: Probability, random variables such as Poisson, Geometric, Hypergeometric, Uniform, Normal, Gamma, Beta, Exponential and their distributions, independence and correlation, multivariate distributions, marginal and conditional probabilities, functions of random variables, order statistics and their distributions, moment generating functions, the Central Limit Theorem. No credit for students with credit in STAT 4203 or STAT 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5263 Mathematical Statistics II
Prerequisites: STAT 5253 or STAT 4123.
Description: Methods of estimating population parameters such as point and confidence interval estimation for a mean, proportion, and the difference between means and proportions, maximum likelihood methods, method of moments, hypothesis testing and its applications, sample size estimation, linear regression models, and categorical data analysis. No credit for students with credit in STAT 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5303 Experimental Designs
Prerequisites: STAT 5023 or STAT 4023 with consent of instructor.
Description: Students will identify treatment structures and design structures, conduct the analyses of data from experimental scenarios, and interpret the results. The understanding and preparation of statistical analysis statements for publication are also covered. Analysis topics include: ANOVA, multiple comparisons, factorial experiments, complete and incomplete block designs, linear mixed models analysis (including repeated measures analysis), split-plot experiments, 2n and 3n factorial experiments, fractional factorial experiments, crossover designs, ANCOVA and SAS programming.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5323 Generalized, Linear and Mixed Models
Prerequisites: (STAT 4213 or STAT 5263 or STAT 5223) and MATH 3013 and (STAT 5013 or STAT 5543 or STAT 4023 or STAT 4043)
Description: Review of relevant matrix theory; multivariate normal distribution; maximum likelihood estimation; linear models with applications in regression and analysis of variance; linear mixed models with applications in blocked designs, repeated measures and longitudinal data analysis; generalized linear models with applications in logistic regression and Poisson regression. This course is ideal for researchers needing more in-depth understanding of linear models in advanced data analysis.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5333 Theory of Linear Models
Prerequisites: STAT 5323.
Description: Matrix theory (generalized inverse, idempotent matrix, and non- negative matrix results), multivariate normal distribution, quadratic forms, chi-square distribution, linear models, estimability, general hypothesis testing.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5503 Statistical Literacy for Researchers
Prerequisites: MATH 1513.
Description: This course focuses on developing the statistical skills graduate students will utilize in deciphering the wealth of data available today. The course focuses on concepts and conclusions rather than on computations. Topics include descriptive statistics, basic probability, confidence interval, hypothesis testing and p-values, analysis of variance, design of experiments, categorical data analysis, multiple linear regression, logistic regression, and nonparametric statistics. This course cannot be used as a prerequisite for other statistics courses.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5513 Multivariate Analysis
Prerequisites: STAT 5323.
Description: Multivariate normal distribution, simple, partial and multiple correlation, multivariate sampling distributions. Wishart distribution, general T-distribution, estimation of parameters and tests of hypotheses on vector means and covariance matrix. Classification problems, discriminate analysis, and applications.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5543 Applied Regression Analysis
Prerequisites: One of STAT 4013, STAT 4033, STAT 4053, STAT 5013 or equivalent.
Description: Matrix algebra, simple linear regression, residual analysis techniques, multiple regression, dummy variables, interactions, model building, introduction to logistic regression. This course explains fundamentals of linear regression and provides an introduction to logistic regression. May not be used for degree credit with STAT 4043.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5563 Statistical Methods II for the Social Sciences
Prerequisites: STAT 3013 or STAT 4013 or STAT 4033 or STAT 4053.
Description: Basic concepts of experimental design. Analysis of variance, covariance, split-plot design. Factorial arrangements of treatments, multiple and curvilinear regression, enumeration data. May not be used for degree credit with STAT 4023 and STAT 4063.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5653 Data Engineering
Prerequisites: (STAT 5253 or STAT 5123 or IEM 5003) and IEM 5083
Description: Course focuses on advanced data engineering and data mining methods to solve problems under data-rich scenarios. Covers a collection of methods including a review of supervised learning and detailed discussions of unsupervised learning. Course will also cover a series of data engineering tools such as data visualization and data preprocessing. Cutting-edge data mining methods will also be introduced. The introduced methods and tools will be showcased using real-world data sets in various areas such as manufacturing, healthcare, and agriculture. Same course as IEM 5653 and MATH 5653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 5910 Seminar in Statistics
Prerequisites: Consent of instructor.
Description: Investigation of special problems in the theory and/or application of statistics using current techniques. Special studies for M.S. level students. Offered for variable credit, 1-6 credits. maximum of 3 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Statistics

STAT 5980 Internship in Statistics
Prerequisites: Consent of instructor.
Description: Directed practicum or internship experience in a Statistics-related professional work setting. Students must have an approved internship that will provide statistical experience beyond that available in the classroom. Students produce written analyses of their work and learning under the guidance of the instructor and internship site supervisor. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Statistics

STAT 6000 Doctoral Dissertation
Prerequisites: Consent of advisory committee.
Description: Directed research culminating in the PhD thesis. Offered for variable credit, 1-10 credit hours, maximum of 30 credit hours.
Credit hours: 1-10
Contact hours: Contact: 1-10 Other: 1-10
Levels: Graduate
Schedule types: Independent Study
Department/School: Statistics

STAT 6010 Statistics Literature
Prerequisites: Consent of instructor.
Description: Published journal articles from statistics or related areas are discussed. Previously offered as STAT 6001. Offered for fixed credit, 1 credit hour, maximum of 2 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 6013 Genetic Statistics
Prerequisites: Elementary Statistics or with the permission of the instructor.
Description: Course provides a statistical basis for analyzing genetic sequence data. Review of basic concepts in statistics including graphical and numerical methods, sample size estimation for biological experiments, and hypothesis testing. Review of basic concepts in genetics including DNA, genes, alleles, polymorphisms, SNP's. Descriptive statistics for genetic sequences, use of statistical tools for sequence analysis and statistical inference with R.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 6113 Advanced Probability Theory
Prerequisites: STAT 5123 and MATH 5143.
Description: Measure theoretical presentation of probability, integration and expectation, product spaces and independence, conditioning, different kinds of convergence in probability theory, statistical spaces, characteristic functions and their applications. Previously offered as STAT 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 6203 Large Sample Inference
Prerequisites: STAT 5223 and STAT 6113.
Description: Different types of convergence in probability theory, central limit theorem, consistency, large sample estimation and tests of hypotheses, concepts of asymptotic efficiency, nonparametric tests. Previously offered as STAT 5203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 6223 Advanced Statistical Inference
Prerequisites: STAT 6113.
Description: Point estimation, maximum likelihood, Cramer-Rao inequality, confidence intervals, Neyman-Pearson theory of testing hypothesis and power of test. Previously offered as STAT 6213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Statistics

STAT 6910 Special Problems
Prerequisites: Consent of instructor.
Description: Investigation of special problems in the theory and application of statistics using current techniques. Special studies for PhD level students. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-12
Contact hours: Contact: 1-12 Other: 1-12
Levels: Graduate
Schedule types: Independent Study
Department/School: Statistics

Strategic Communication (SC)

SC 2083 Digital Communication for Strategic Communication
Prerequisites: ENGL 1213 or ENGL 1223 or ENGL 1413 with a grade of "C" or better. 24 hours earned and SC maiors only.
Description: This course introduces students to Digital Communications in Strategic Communication. The course will focus on fundamental principles and skills of digital storytelling, including social media and video creation. Using multimedia tools, students will gain skills for visually communicating a strategic brand story through digital channels. There will be an emphasis on basic skill set, with a series of hands-on lessons.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 2183 Introduction to Strategic Communications
Description: Strategic communication is crafting and delivering impactful messages that drive organizational success and plays a crucial role in shaping brand identity, managing crises, and putting stakeholders at the forefront of decisions. Create planned, purposeful, and powerful communications that resonate with targeted audiences and achieve strategic goals. Learn about communication in shaping public perception, building lasting relationships and navigating ethical complexities. Explore careers in advertising, public relations, corporate communications, and marketing. Previously offered as JB 2183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 2330 Industry Immersion in Strategic Communication
Prerequisites: MC 2003 and MC 2023 and SC 2183 with a grade of 'C' or better in each, and pass proficiency review.
Description: This course will expose strategic communication (SC) majors to work environments related to their major. Through industry site visits in Oklahoma, students will network with professionals to observe, engage, and reflect upon the professional practice of strategic communicators. Students will observe SC practices and work cultures at advertising, marketing, and public relations agencies: corporate communication and government offices: and nonprofits. Professional development activities for job/internship searches. Variable credit, 1-3 credit hours, maximum of 6. Previously offered as SC 2333.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 3050 Topics in Global Communication
Prerequisites: SC 2183 and MC 2003; and MC 2023 or SC 2083 or instructor permission with a grade of 'C' or better in each, and pass proficiency review.
Description: Global communication strategies at an advanced level. Strategic communication topics to center on contemporary global messaging and will vary. These will include agency, government, diplomatic, non-profit, corporate, sustainability and/or brand communication on a global stage. Students will prepare to navigate personally and professionally at a global level, examine worldwide communication issues, and develop critical thinking skills, knowledge and attitudes that will enable them to collaborate across cultural boundaries and lead with ethical and engaged citizenship. For 3 credit hours, Max: 9
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 3353 Persuasive Writing for Strategic Communicators
Prerequisites: MC 2003 and MC 2023 and SC 2183 with a grade of "C" or better in each, pass proficiency review.
Description: An examination of the language of persuasive communication, how persuasion works and the techniques of persuasive message strategy. Application of persuasive writing for traditional media and emerging digital media.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm
Additional Fees: SC 3353 AP Stylebook fee of $5.30 applies.

SC 3383 Strategic Communications Management and Strategies
Prerequisites: MC 2003 and MC 2023 and SC 2183 with a grade of "C" or better in each; and pass proficiency review.
Description: Course explores account management techniques, tools, and advanced advertising and public relations strategies. Account executives focus on managing projects, people, clients, agencies, and crises. Strategic communicators must consider ways to effectively manage image, issues, and information. Students will learn and practice how to manage these effectively and to create, develop, implement, and evaluate effective communication strategies in various organizational contexts. Course previously offered as JB 3383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 3443 Social Media Playbook
Prerequisites: MC 2003 and MC 2023 and SC 2183 with a grade of "C" or better in each; and pass proficiency review.
Description: Every communicator knows the value of a solid social media presence, but how do you get one? This class focuses on social media strategy from the ground up. Students will learn how to leverage social media platforms, tools, and strategies to connect with audiences. Topics may include: building your brand on social; strategies for capturing and engaging target audiences; influencer marketing; planning social media campaigns; and optimizing strategies for earned, owned, and sponsored content.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 3463 Event Planning and Communication
Prerequisites: MC 2003 and MC 2023 and SC 2183 with a grade of "C" or better in each or permission of instructor.
Description: This course covers the fundamentals of event planning from a strategic communications perspective. Teaches a variety of aspects involved in event planning including creating a vision and strategic plan, understanding various marketing strategies, budget management, networking, conference design, and assessment. Attendance of two events outside of class are required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 3483 Nonprofit Communications
Prerequisites: MC 2003 and MC 2023 and SC 2183 with a grade of "C" or better in each; and pass proficiency review.
Description: This course will offer an overview of branding and communications concepts, helping students approach branding in a way that builds commitment to their organization's mission, increases trust, creates ambassadors, and strengthens impact. Students will gain a basic familiarity with a variety of branding principles, fundraising techniques and develop strategic communication recommendations for an organization with which they are familiar.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 3600 Strategic Communications Internship
Prerequisites: SC 3353 and SC 3753 with a grade of "C" or better in both and consent of instructor; and pass proficiency review.
Description: Internship practice for qualified strategic communications students who seek creative communications experience beyond that available in the classroom. Internships must be approved prior to counting hours worked. Must work sixty or more hours for each credit hour up to three credit hours for each individual internship. Course previously offered as JB 3600. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

SC 3603 Creative Strategies
Prerequisites: SC 2183, MC 2003 and MC 2023 or SC 2083 with a grade of 'C' or better in each, and pass proficiency review.
Description: This course emphasizes the development of creative strategies in advertising and public relations campaigns. It teaches students to think creatively to solve advertising and PR challenges and to effectively formulate the campaign's 'Big Idea.' Students will learn to innovate through brainstorming and concept development, integrating insights from target audience, market, and product research. Hands-on exercises in copywriting and design will enable students to apply creativity in various marketing contexts, culminating in a campaign board. Previously offered as JB 3603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 3693 Social Media Analytics
Prerequisites: SC 3353 and SC 3753 with a grade of "C" or better in both; and pass proficiency review.
Description: This course introduces students to the fundamental principles and techniques of social media analytics, focusing on the collection, analysis, and interpretation of social media data for advertising and public relations purposes. Emphasizing practical, hands-on experience, students will learn to utilize programming languages like R to understand social media trends, audience behavior, and campaign effectiveness. However, pre-existing knowledge of programming languages is not required.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 3753 Graphic Design for Strategic Communication
Prerequisites: MC 2003 and MC 2023 or SC 2083, and SC 2183 with a grade of "C" or better in each, pass proficiency review.
Description: An analysis and application of graphic design elements in strategic communication to be used in traditional and new media. Instruction through weekly assignments, critiques, readings, lectures, and discussions. Creative and practical aspects of typography, color, composition, shape, and pattern, providing a foundation for interpreting and applying graphic design concepts in both print and digital media. Course encourages a self-directed and experimental approach, allowing students to engage with practical design projects and develop their creative skills. Course previously offered as JB 3753.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm

SC 3783 Strategic Sport Communication
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or better in each; and pass proficiency review.
Description: Provides an overview and introduction to sport media consumption and communication within the sport industry. The primary focus of the course is on the role of strategic communication in all aspects of sport, fundamentals of sport publicity and promotional campaigns. Course previously offered as JB 3783 and SPM 3783.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 3953 Research Methods for Strategic Communicators
Prerequisites: MC 2003 and MC 2023 and SC 2183 with a grade of "C" or better in each; and STAT 2013 or STAT 2053; and pass proficiency review.
Description: This course provides an overview of strategic communication research, emphasizing its application in developing and evaluating strategic communication strategies. Primary and secondary research are employed to understand target audiences, including consumers, stakeholders, and the public. The course outlines procedures for conducting a research project, engaging students in the research planning process, gathering primary data, and analyzing and parenting results.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 4013 Media and Markets
Prerequisites: MC 2003 and MC 2023 and SC 2183 with a grade of "C" or better in each; and STAT 2013 or STAT 2053; and pass proficiency review.
Description: Introduction to the strategic use of media. Major principles of media planning and buying, audience measurement, media research, new media technology, and market segmentation. Course previously offered as JB 3013.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 4053 Study Abroad: Strategic Messaging
Description: Course involves participation in an international experience facilitated by Strategic Communication faculty. This course will involve the integrated study of a country or region regarding relevant cultural, commercial, historical, technological, political or economic issues. Students will develop global cultural competencies and professional preparedness through travel and engagement with the destination's citizens. Course assignments and discussions will focus on strategic messaging with focus on the perspective of the location and its social, cultural and/or political perspectives.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

SC 4063 Creative Video for Digital Strategy
Prerequisites: SC 3353 and SC 3753 with grade of "C" or better and pass proficiency review.
Description: This course focuses on strategies for social media communicators, technical video productions skills, and creative principles required to plan, shoot, and edit impact videos for social media. Students will produce Impact Videos to promote clients' visual brand identity on social media platforms.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 4223 Media Sales and Marketing
Prerequisites: MC 2003 and MC 2023 with a grade of "C" or better in both; and pass proficiency review.
Description: The primary focus of this course is to learn to sell advertising time and space and gain insight into the professional sales process. Course will explore the role of sales in the marketing mix, the intricacies of the different local media available to advertisers, how to make effective sales presentations and the art of prospecting. Course previously offered as JB 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 4383 Media Relations
Prerequisites: Senior standing, minimum graduation/retention GPA of 2.5.
Description: Strategies for dealing with the news media. Students will gain hands-on experience in conducting media news conferences, pitching story ideas and preparing themselves and other for dealing with news media interviews. Meets with MC 5383. No credit for students with credit in MC 5383. Course previously offered as JB 4383.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 4493 Strategic Writing for Content Creation
Prerequisites: SC 3353 and SC 3753 with a grade of "C" or better in both; and pass proficiency review.
Description: An advanced writing application course in creating, planning, researching, editing, and designing of multimedia content used in strategic communication. Previously offered as JB 4493.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm
Additional Fees: SC 4493 AP Stylebook fee of $5.30 applies.

SC 4520 Specialized Strategic Communication Applications
Prerequisites: SC 3353 and SC 3753 with a grade of "C" or better in both; and pass proficiency review.
Description: Professional strategic communications at an advanced level. Strategic communications study of non-profit, corporate, agency, international and other specialized applications. Course content varies by semester. No credit for students with credit in MC 5520 during the same semester or with the same subtitle. Course previously offered as JB 4520. Offered for fixed 3 credit hours, maximum of 9 credit hours.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Media & Strategic Comm

SC 4603 Integrated Marketing Communication
Prerequisites: MC 2003 and MC 2023 and SC 2183; or MKTG 3213 with a grade of "C" or better in each.
Description: Principles and practices of Integrated Marketing Communication/IMC. Examination of how various communication tools blend to create consistent and effective messages across multiple channels. Includes key elements of the promotional mix: advertising, public relations, direct marketing, and sales promotion. Students will learn basic IMC strategies that align with overall marketing goals and understanding target audiences, crafting compelling messages, and selecting appropriate communication channels. Intro to fundamental theories and current trends in marketing communication. Previously JB 4603.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 4653 Influencers, Promotions and Placements
Prerequisites: SC 2183 and MC 2003; and MC 2023 or SC 2083; with a grade of "C" or better in each; and pass proficiency review.
Description: Advanced practices in strategic communication focusing on influencer marketing, cross promotions and product placement. Students will learn to build authentic connections with audiences, generate buzz, and integrate brands into popular culture. Ideal for those aiming to innovate in advertising, marketing, public relations, and sport communication, this course offers a comprehensive understanding of how modern brands succeed in a competitive marketplace. Previously offered as JB 4653.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 4663 Professional Portfolio
Prerequisites: SC 3353 and SC 3753; or MMJ 4423 with a grade of "C" or better in each; or permission of instructor; and pass proficiency review.
Description: Designed to help students polish and present their design and creative work in an integrated package coupled with personalized identity materials. Emphasis will be on applying advanced visual and graphic communication theories to present an attractive and persuasive portfolio of creative work. It is intended for students who have completed a significant amount of course work in their field. An intermediate level of experience with desktop design software is assumed.. Course previously offered as JB 4663.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Media & Strategic Comm

SC 4843 Strategic Communication Campaigns
Prerequisites: SC 3953 and SC 4493; both with "C" or better; and pass proficiency review.
Description: Planning, preparation and presentation of comprehensive integrated strategic communication campaigns for national or local clients. Student teams produce all aspects of the campaign, from conception to presentation. Satisfies capstone requirements for strategic communication majors. Course previously offered as JB 4843.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 4940 Communication Competitions
Prerequisites: Instructor permission
Description: Course focuses on building the foundations for the Advertising Competitions course. It provides students with experience conducting primary and secondary research and executing the fundraising campaign. Working under a team concept on American Advertising Federation's (AAF) National Student Advertising Competition (NSAC), students will produce a detailed situation analysis, communications audit, primary and secondary research identifying problems and opportunities, and target audience analysis. Students accepted by application and interview. Offered for 3 credit hours, maximum of 6 credits.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

SC 4980 Advertising Competitions
Prerequisites: Consent of instructor.
Description: Gain real-world experience on a team developing an integrated advertising campaign for the prestigious American Advertising Federation (AAF) National Student Advertising Competition (NSAC). Through extensive research, strategic planning, and creative execution, students will apply their advertising knowledge and skills and develop expertise in branding, marketing, media strategy, and campaign materials. Admission is by application. This course offers hands-on learning, professional mentoring, and the opportunity to showcase your work regionally and nationally. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Media & Strategic Comm

Theatre (TH)

TH 1223 Acting Fundamentals for Non-Majors
Description: This acting course introduces students to fundamental acting techniques. Through lecture and application, students will focus on observation, improvisation, and performances, learning to effectively express themselves orally and physically, develop empathy, enhance communication skills, nurture creativity, and build leadership and teamwork abilities.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 1301 BFA Acting Laboratory
Description: The BFA Acting Laboratory is a course designed to give students the opportunity to explore concepts from their acting class in a laboratory environment. Using group problem-solving techniques, students will create weekly performances, critically respond to others performances and develop a sense of community within the BFA environment.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 1310 BFA Movement Laboratory 1
Description: The BFA Movement Laboratory is a course designed to give students the opportunity to explore concepts from their movement class in a laboratory environment. Students will be developing and strengthening their physical instrument (mind, body, voice) through rigorous physical investigation including yoga, tai chi, circuit training, circus, acrobatics, strength training, kinesthetic awareness and flexibility. Previously offered as TH 1311. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Lab: 2-8 Contact: 2-8
Levels: Undergraduate
Schedule types: Lab
Department/School: Theatre

TH 1313 Vocal Technique
Description: This course is a foundational class in singing and vocal technique. Students will learn the basics of singing in a group laboratory setting. From understanding the anatomy and elements of your instrument, to breath and proper breathing technique, to phrasing and placement, this is a step-by-step guide designed to enable all students to sing safely and strengthen their voice.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 1323 Acting I - Fundamentals of Acting
Description: An introduction to the craft of acting for performance: ensemble techniques, vocal and physical development for the actor, fundamental scene and character analysis, basic audition techniques, and scene performance workshops. No previous experience necessary. Previously offered as TH 1322.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 1330 BFA Movement Laboratory 2
Description: The BFA Movement Laboratory 2 is a course designed to give students the opportunity to explore advanced concepts from their movement class in a laboratory environment working in ensemble. Students will be developing and strengthening their physical instrument (mind, body, voice) through rigorous physical investigation including partner yoga, adagio, advanced circus, advanced acrobatics, dramatic acrobatics, long form tai chi and mask work. Offered for fixed credit, 1 credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Theatre

TH 1333 Voice for the Actor
Description: Study of the skills required to develop an expressive, resonant voice, and Improved speech on and off the stage. The class will focus on freeing the breath, the release of physical tenslon, the flexibility of the voice, and application of vocal and physical variety as It pertains to the impulse to speak. Content includes vocal anatomy, methods to prevent vocal Injury, and an Introduction of the International Phonetic Alphabet.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 1403 Musicianship for the Singing Actor I
Prerequisites: Theatre major, Musical Theatre Major.
Description: This course develops core musical skills that actors need for interacting with a score-based art form. Topics include critical listening, aural skills, and improvisation as well as reading and writing musical notation. Focusing on practical needs in the industry, students develop skills in keyboarding, conducting, and audio production.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 1413 Musicianship for the Singing Actor II
Prerequisites: TH 1403 or Instructor Permission.
Description: This course builds advanced musical skills following the basics acquired in Musicianship for the Singing Actor I. Students learn sight-singing, ensemble collaboration, back-phrasing, and recitative. Focusing on practical needs in the industry, students develop skills in keyboarding, conducting, and audio production.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 1500 Run Crew Practicum
Description: Practical application of run crew duties by participation in technical rehearsals and performances for a Theatre Department Production. Offered for fixed 1 credit hour, maximum of 6 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Theatre

TH 1663 Stage Technology
Description: An introduction to technical concepts for theatrical productions in the performance and entertainment disciplines. Lectures provide preparatory principles, concepts, and theory; laboratory hours teach hands-on skills needed in the technical production environment including scenographic elements and fabrication. Course previously offered as TH 1664.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 1673 Costume Technology
Description: An introduction to technical concepts for theatrical productions in the performance and entertainment disciplines. Lectures provide preparatory principles, concepts, and theory; laboratory hours teach hands-on skills needed in the costume production environment including hand and machine sewing and pattern making. Previously offered as TH 1674 and TH 2673.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 2213 Dialects and Accents for Stage and Screen
Prerequisites: TH 1333 Voice and Movement.
Description: The study and practice of dialects and accents most frequently required by American actors. The course will Include the study of the cultural impact on speech and dialect acquisition. Students will be expected to use the International Phonetic Alphabet for transcriptions.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 2320 Performance Lessons I
Prerequisites: BFA Musical Theatre major or instructor permission.
Description: This one-on-one vocal coaching focuses on learning and performing musical theatre song as well as other popular styles encountered by the modern singing actor (jazz, pop, rock, country). Emphasis is on healthy singing, musical style, developing practice routines, and analyzing music and lyrics. Offered for variable credit, 1-2 credit hours, maximum of 4 credit hours.
Credit hours: 1-2
Contact hours: Lecture: 1-2 Contact: 1-2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 2323 Acting II - Character Development
Prerequisites: TH 1323.
Description: A continuation of the actor's process to the intermediate level. Content will include further character study, scene analysis, Improvisation, and applied Stanlslavski based techniques. Scene work will focus on truthful behavior through imaginary circumstances on the stage, including extreme circumstances, using active or event analysis. Audition techniques will be further developed. Students will see OSU Theatre Department or professional productions and write critical responses to that work.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 2413 Introduction to Staged Entertainment (H)
Description: Explores storytelling through performance and how staged and filmed performances create and convey meaning in western society. Attendance of productions and study of acting, directing, entertainment technology, dramatic structure, and artistic movements. For non-majors; may not be used for credit for the BA Theatre, BFA Acting, BFA Music Theatre, and BFA Theatre Arts degree plans; no prior theatre experience necessary.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre
General Education and other Course Attributes: Human Heritage & Cultures

TH 2500 Production Crew Practicum
Description: Laboratory experience in the theatrical production process through participation on a production crew for a department production or semester. Course previously offered as TH 1501. Offered for variable credit,1-2 credit hours, maximum of 8 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Theatre

TH 2553 Fundamentals of Theatrical Design
Description: A comprehensive exploration of the essential principles, theories, and practices in theatrical design for performance and entertainment disciplines. Students will be equipped with the foundation of the creative processes that bring performances to life by crafting compelling and immersive storytelling by means of design. Through a blend of lectures, practical projects, and critical analysis, students will cultivate the solid skill sets of an ideal theatrical designer.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 2563 Script Analysis
Description: The study of writing for performance from the point of view of entertainment professionals, including directors, designers, performers and technicians. Course focuses on the techniques necessary for the translation of the written text into production.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 2593 Lighting Technology
Description: An introduction to the principles and practices of stage lighting in performance and entertainment disciplines. Includes theoretical explorations and hands-on practice of elementary electricity, mechanics of lighting equipment, and artistic aspects of lighting technology that enhance performance and entertainment productions.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 2633 Movement for the Actor
Prerequisites: TH 1323 Acting I.
Description: This is an introductory course to the physical aspects of role creation. It introduces the student to a variety of methodologies to increase somatic awareness used in analyzing and altering physical performance for the stage. The students will be evaluated on the application of theories discussed and demonstrated in class.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 2653 Drafting for Theatre
Description: Approaches to standard drafting concepts and techniques for performance and entertainment disciplines, including manual and computer aided generation of theatrical graphics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 2753 Stage Management
Description: An introduction to stage management for the performing arts. Emphasis on basic stage management skills, professional etiquette, and incorporation of digital tools and documentation. Overview of stage management relationships with other departments, timelines of productions, and application of stage management skills in other areas of performance and entertainment disciplines.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 2833 Transition to Professions in Design and Technology
Prerequisites: TH 1663 and TH 1673; and TH 1500 or TH 2500.
Description: Preparation for transition into the professional world for theatre designers and technicians. Includes career development, national/international theatre organizations, portfolio preparation, websites, resume/application writing and interviewing. Course previously offered as TH 3533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 2971 Stage Makeup
Description: Techniques of basic stage makeup. Application of makeup including a study of facial anatomy and character development. Laboratory work in preparation for departmental productions. Course previously offered as TH 3971.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Theatre

TH 3183 Theatrical Scenic Design
Prerequisites: TH 2553 and TH 2563 or consent of instructor.
Description: Approaches to designing scenery for performance and entertainment disciplines. Through lectures and practical exercises, students will learn to create visually compelling environments by integrating research and conceptual analysis. Focusing on the entire design process, including technical considerations and collaboration, students will develop the skills needed to become a successful theatrical scenic designer. Previously offered as TH 4183.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 3203 Musical Theatre Vocal Styles I
Prerequisites: TH 1323, Acting 1: Fundamentals of Acting
Description: This course explores the musical features and vocal styles represented in early 20th century Musical Theatre literature including operetta, Golden-Age, and musical comedy. Core topics include tone, diction, phrasing, and vibrato as well as the physicality and movements associated with a style period. Students apply these styles and techniques to their own performance. The course includes critical viewing and listening of musical theatre repertoire.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 3233 Musical Theatre Vocal Styles II
Prerequisites: TH 1323, Acting 1: Fundamentals of Acting
Description: This course explores the musical features and vocal styles represented in the second half of the 20th century musical theatre literature, extending to contemporary works, including rock, pop, county, and folk. Core topics include tone, diction, phrasing, and vibrato as well as the physicality and movements associated with a style period. Students apply these styles and techniques to their own performance. The course includes critical viewing and listening of musical theatre repertoire.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 3320 Performance Lessons II
Prerequisites: TH 2320 and Instructor Permission.
Description: Building on Performance Lessons I, this upper-level one-on-one vocal coaching explores the synthesis of music and lyrics within theatre song as well as popular styles encountered by the modern singing actor (jazz, pop, rock, country). Emphasis is on advanced techniques in vocal style, musical phrasing, lyric analysis, diction, and performance. Offered for variable credit, 1-2 credit hours, maximum of 4 credit hours.
Credit hours: 1-2
Contact hours: Lecture: 1-2 Contact: 1-2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 3323 Theatrical Sound Design and Technology
Prerequisites: TH 2553 and TH 2563 or consent of instructor.
Description: A comprehensive exploration of creating immersive and impactful sound environments for performance and entertainment disciplines. Students will acquire the skills needed to design, implement, and manage sound for theatrical productions using various technologies and techniques. Previously offered as TH 4223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 3343 Acting for Musical Theatre
Prerequisites: TH 1323 or Instructor's permission.
Description: Acting for Musical Theatre is a performance-oriented course in which students will apply fundamentals of acting to musical theatre song. Students will workshop and perform musical theatre songs of multiple genres and develop skills in acting, and movement. This course will be a combination of lecture and practical application of learned concepts.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 3373 Acting III - Shakespeare
Prerequisites: TH 1323 and TH 2323 or consent of instructor.
Description: Designed to provide a foundational understanding and working knowledge of many of Shakespeare's plays, this course will use a combination of both lecture and action-based studio work to expand and refine the actor's skills. Physical and vocal techniques needed to perform classical verse plays will be included. Course previously offered as TH 4143.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 3400 Upper-Division Projects
Prerequisites: Consent of instructor.
Description: Individual or group study of techniques, history, or literature of the theatre. Required project or term paper. May not be used for degree credit with TH 5400. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Theatre

TH 3433 Acting for the Camera
Prerequisites: TH 1323 and TH 2323 or consent of instructor.
Description: An introduction to acting with electronic media technology. Through a series of exercises and scenes students will become familiar with the similarities and differences of acting on stage and with technology.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 3500 Theatre Practicum II
Prerequisites: Consent of instructor.
Description: Advanced laboratory experience in theatre production, design, acting, and/or major crew assignments. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: Theatre

TH 3503 Digital Branding for the Performer
Description: This course surveys the development of radio, television, cable/satellite, and digital media, including the Internet and how it affects the modern actor. We will focus on how technology and industrial control of the electronic media shape an actor's content. The purpose of this course is to provide you with a solid understanding of how the electronic media function in modern life in terms of the social, political, and cultural impact for the actor. Students will be utilizing film, editing software, social media, website design to create content and audition reels.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 3530 Topics in Performance
Prerequisites: Consent of instructor.
Description: Specialized topics in acting or directing. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 3593 Theatrical Lighting Design
Prerequisites: TH 2593, TH 2553, and TH 2563 or consent of instructor.
Description: Approaches to the principles and techniques of lighting design for performance and entertainment disciplines. Students will learn to research, conceptualize, and execute lighting design through a combination of theoretical study and practical application. Previously offered as TH 4593.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 3633 Contemporary Voices of American Drama (DH)
Description: Survey of dramatic literature and theatre created by a multiplicity of dramatists and theatre companies in the United States. Course focus may either be a broad investigation of drama across many different groups of people in the US or an in-depth exploration of the theatrical activity of one group of people.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre
General Education and other Course Attributes: Diversity, Human Heritage & Cultures

TH 3683 Theatrical Craftworks
Prerequisites: TH 1663 and TH 1673
Description: Explores materials and techniques and develops skills for the creation of theatrical crafts used in the performance and entertainment disciplines. Projects reinforce hands-on skills for the utilization of materials and techniques necessary for advanced theatrical craftwork.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 3822 Advanced Stage Movement
Prerequisites: TH 2633 or instructor's permission.
Description: This course investigates kinesthesia In the actor through a progression of exercises that strengthen physical agility, listening, and responding. The student will deepen the connection between impulse and action through mask, physical comedy, biomechanics, and plastique training. Students will liberate the right-brained imagination for transformative performance, preparing the student for In-depth exploration of character development, with emphasis on ensemble collaboration.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Theatre

TH 3823 Advanced Voice for the Stage
Prerequisites: TH 1333.
Description: This course is a continuation of the development and practice of skills in breathing, phonation and resonance, with added attention being paid to the analysis, expression and pronunciation of elevated and/or poetic drama. Students will also investigate how different acoustical spaces require different vocal techniques needed for the amplification of the voice.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 3843 Musical Theatre Scene Study
Prerequisites: TH 2323 Acting 2: Character Development
Description: Musical Theatre Scene Study is an advanced performance course focusing on musical theatre scenes. This course will be a combination of lecture and practical application of learned concepts, focusing on navigating the transition between scene and song.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 3853 Auditioning
Prerequisites: TH 3843 or TH 3373 or Instructor's permission.
Description: This course wIll develop the tools necessary for professional development and pursuit of work as a theatrical performer. Students will prepare for and experience practical musical and non-musical in-person and video auditions. Main topics Include self-tapes, casting, networking, and booking work. Emphasizing professional readiness, students create a professional portfolio-resume, headshots, audition book, and website. Course previously offered as TH 4853.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 3863 Auditioning in Musical Theatre
Prerequisites: TH 2343 or instructor approval.
Description: The goal of this course is to teach students the skills and aspects of professional musical theatre auditions. Students in this course will learn the elements of auditioning in musical theatre and how to build a complete audition book. They will be given guidance and feedback about cover letters, resumes and headshots and basic information about the professional world. Finally, students will test out their skills with multiple mock audition opportunities.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 3873 History of Musical Theatre (H)
Description: Musical Theatre History is a survey course of the American musical theatre tradition, exploring representative shows, creators, and performers that trace the evolution of this unique American art form from its origins to contemporary Broadway and pop culture.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre
General Education and other Course Attributes: Human Heritage & Cultures

TH 3903 History of Dress, Architecture, and Decor for the Stage
Description: An exploration of the evolution of dress, architecture, and artistic décor movements from antiquity to the modern era that examines how cultural, political, and technological shifts influence aesthetic expression. Students build and establish a visual knowledge base and vocabulary to communicate and collaborate in developing a refined understanding of production environments in performance and entertainment disciplines. Same course as TH 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 3923 World Theatre History Before 1800 (H)
Description: Aesthetic and social relationships of the dramatic arts and world cultures from Ancient Greece to the 19th century. Course previously offered as TH 3023.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre
General Education and other Course Attributes: Human Heritage & Cultures

TH 3933 World Theatre History After 1800 (H)
Description: Aesthetic and social relationships of the dramatic arts and world cultures from the 19th century to the present. Course previously offered as TH 3123. May be taken prior to TH 3923.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre
General Education and other Course Attributes: Human Heritage & Cultures

TH 3953 Theatrical Costume Design
Prerequisites: TH 2553 and TH 2563 or consent of instructor.
Description: Approaches to costume design for performance and entertainment disciplines through research, conceptual analysis, figure drawing, and execution of sketches and renderings. Previously offered as TH 4973.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 4303 Ensemble Theatre
Description: Ensemble Theatre is an alternative approach to creating that emphasizes collaborative ensemble-based writing, community research and outreach, and social and political awareness. Utilizing improvisational techniques, community-oriented research skills and non-textual performance practices, students will explore and create theatre based on their communities, interests and concerns.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 4320 BFA Voice Lessons III
Prerequisites: TH 3320.
Description: This course is a continuation of private vocal instruction for students nearing completion of the Musical Theatre BFA degree. Building on the skills learned in BFA Voice Lessons II, students will explore advanced techniques of color and style within the musical theatre genre, continuing to develop their vocal instrument and performance skills. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.
Credit hours: 1-2
Contact hours: Lecture: 1-2 Contact: 1-2
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 4353 Acting IV - Advanced Scene Study
Prerequisites: TH 2323 or Instructor's permission.
Description: An advanced scene study acting laboratory to sharpen the actor's process for professional preparation. This course explores acting pedagogy and techniques which synthesize all previous acting levels, providing a timely capstone experience as the student actor prepares to enter the profession.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 4382 Staged Combat and Physical Acting
Prerequisites: TH 2633 or Instructor's permission.
Description: Advanced application of the actor's movement skills to the unique requirements of theatrical forms that Incorporate stage violence or physical comedy. Applied skills include hand-to-hand combat armed combat, and may include tumbling, gymnastics, clowning, mask work, or ethnic arts. Previously offered as TH 4383.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Undergraduate
Schedule types: Lab
Department/School: Theatre

TH 4403 Senior Honors Project
Prerequisites: Departmental invitation, senior standing, Honors Program participation.
Description: A guided reading and research program ending with an honors thesis or performance under the direction of a faculty member, with second faculty committee member. Required for graduation with departmental honors in theatre.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre
General Education and other Course Attributes: Honors Credit

TH 4423 Professional Preparation for Performance
Prerequisites: Must have completed 72 credit hours or Instructor's permission.
Description: This course will prepare students to make the transition from academic theatre to professional theatre. Students will research what is currently happening in the industry, and develop the skills needed to be a working professional Other topics will include the business aspects of a career in theatre, a plan for personal financial health, the business of creating and producing theatre work, creating a relocation plan to a potential arts market and the graduate school process.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 4500 BFA Design and Technology Capstone
Prerequisites: Consent of Instructor.
Description: The BFA Design & Technology Capstone course serves as the culmination of study of theatrical design, technology, and management for performance and entertainment disciplines. With an emphasis on collaboration, students will demonstrate the essential skills, craft, artistic awareness, and professional mindset they have developed during their studies while focusing on the creative and technical processes that bring a theatrical production to life.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Undergraduate
Schedule types: Lab
Department/School: Theatre

TH 4630 Topics in Design and Technology
Prerequisites: TH 1663, 1673 and 2553 or consent of instructor.
Description: Specialized topics in scenic, costume, sound, or lighting design or technology. Course previously offered as TH 3630. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 4653 Advanced Stage Technology
Prerequisites: TH 1663.
Description: Advanced study in technical concepts for productions in the performance and entertainment disciplines. Lectures provide principles, concepts, and theory; laboratory hours offer advanced hands-on skills needed in the technical production environment including unique scenographic elements and advanced fabrication techniques.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 4673 Advanced Costume Technology
Prerequisites: TH 1673.
Description: Advanced study in technical concepts for costuming in the performance and entertainment disciplines. This course explores principles, concepts, and theory with hands-on skills needed in a costume production environment including historical costume elements and advanced fabrication techniques.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 4753 Advanced Stage Management
Prerequisites: TH 1500 and TH 2753 or consent of instructor.
Description: Advanced procedures and leadership skills of effective stage management for performance and entertainment disciplines. Principles of efficient management of rehearsals and performances, collaboration with artistic team members to execute and maintain creative vision, and exploration of stage management roles in various entertainment fields. May not be used for degree credit with TH 5753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 4953 Directing
Prerequisites: TH 1323 and TH 2563 and TH 4753 or consent of instructor.
Description: Script analysis for production, problems in staging, and the role of the director. Planning and direction of scenes in laboratory situations. May not be used for degree credit with TH 5953.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 4983 Theatrical Scenic Painting
Prerequisites: TH 1663 or consent of instructor.
Description: Explores the various tools, materials, techniques, and processes used in scenic painting for performance and entertainment disciplines. Through research and practical experience, students will acquire the skills necessary to implement theatrical painting techniques per designer specification.
Credit hours: 3
Contact hours: Lab: 6 Contact: 6
Levels: Undergraduate
Schedule types: Lab
Department/School: Theatre

TH 4990 BFA Capstone
Prerequisites: TH 2320 (4) and TH 3320 (3).
Description: In this course, students demonstrate mastery of singing and acting through memorized songs in the form of a recital, cabaret, or other creative project. Offered for fixed credit, 1 credit hour, maximum of 2 credit hours.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Theatre

TH 5000 Master's Thesis and Research
Prerequisites: Consent of department head.
Description: Master's level research in theatre for thesis option graduate students. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Theatre

TH 5100 Master's Creative Component and Research
Description: Master's level research in theatre for creative component option graduate students. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Graduate
Schedule types: Lecture
Department/School: Theatre

TH 5113 Theatre History and Theory I
Description: Global study of theatre and performance across cultures and multiple theories used to interpret and construct world theatre history, from ancient times to the nineteenth century.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Theatre

TH 5240 Topics in Advanced Acting
Description: Specialized topics in advanced acting. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-2 Lab: 0-2 Contact: 1-4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 5313 Dramaturgy
Description: Advanced investigation of the nature and process of dramaturgy. Emphasis on dramaturgical research and writing. No credit for students with credit in TH 3213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Theatre

TH 5383 Action Acting
Description: This course introduces the student to stage violence. Emphasis is placed on safe and dramatically effective performance of violent scenes, to include slapstick and physical comedy. Stage/screen fencing, unarmed combat, basic tumbling, physical comedy, and theatrical firearms are covered within the context of scene work. May not be used for degree credit with TH 4383.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 5400 Seminar in Theatre
Description: Individual or group studies of techniques, history or literature of the theatre. A term paper or written report and self-evaluation of the study or project required. Cannot receive credit for both TH 3400 and TH 5400. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Theatre

TH 5500 Individual Theatre Projects
Prerequisites: Consent of instructor.
Description: Individual projects in directing, acting, or design and technology for a specified theatre production, with concept, realization, and self-evaluation under faculty guidance. Course previously offered as TH 5090. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Contact: 1-9 Other: 1-9
Levels: Graduate
Schedule types: Independent Study
Department/School: Theatre

TH 5513 Theatre History and Theory II
Description: Global study of theatre and performance across cultures and multiple theories used to interpret and construct world theatre history, from the nineteenth century to the present.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Theatre

TH 5600 Seminar in Dramatic Literature
Prerequisites: Consent of instructor.
Description: Selected topics in dramatic literature. Texts and themes will vary by semester. Offered for fixed credit, 3 credit hours.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Theatre

TH 5673 Advanced Costume Construction
Description: Advanced construction of techniques for theatrical costumes. Includes period garments, pattern drafting, fabric manipulation, and boning. May not be used for degree credit with TH 4673.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Graduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Theatre

TH 5753 Stage Management
Description: Procedures and skills of effective stage management. Authoritative coordination of performers and technicians during rehearsal and performance periods. Maintenance and use of the production prompt book, notation of ground plan and blocking; scene shifts; cues for lighting, sound, special effects, and performers; opening and calling the show; post-show wrap-up. May not be used for degree credit with TH 4753.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Theatre

TH 5953 Problems in Advanced Directing
Description: Problems in directing styles, especially Shakespeare, comedy, and absurdist drama. Preparation, rehearsal and staging of a complete production by each student. May not be used for degree credit with TH 4953.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Theatre

University (UNIV)

UNIV 0113 Developmental Science Process Skills
Description: Study and investigate the natural world. Emphasis on critical thinking processes. Observation, classification, metric measurement, data table construction, graph construction, and interpretation. May be used to fulfill the science remediation requirement as established by State Regents policy. This course is not acceptable for degree credit at Oklahoma State University. Graded on a satisfactory-unsatisfactory basis. Course offered and transcripted by Northern Oklahoma College.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

UNIV 0123 Pre College Algebra
Prerequisites: ACT Subscore Math 1-16.
Description: In-depth coverage of applications of factoring, arithmetic operations with polynomial and rational algebraic expressions, review of laws of exponents (integers, fractions), simplifying radical linear equations in two variables. May be used to fulfill the mathematics remediation requirements as established by State Regents policy. This course is not acceptable for degree credit at Oklahoma State University. Graded on a satisfactory-unsatisfactory basis. Course offered and transcripted by Northern Oklahoma College. Previously offered as MATH 0123 and MATH 1213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

UNIV 0133 Basic Composition
Description: Intensive instruction in sentence and paragraph structure, punctuation, grammar and word usage. May be used to fulfill the English remediation requirement as established by State Regents policy. This course is not acceptable for degree credit at Oklahoma State University. Graded on a satisfactory-unsatisfactory basis. Course offered and transcripted by Northern Oklahoma College.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

UNIV 0143 Improving College Reading Skills
Description: Instruction to improve reading comprehension, vocabulary building, study and reference skills, and critical thinking. May be used to fulfill the reading remediation requirements as established by State Regents policy. This course is not acceptable for degree credit at Oklahoma State University. Graded on a satisfactory-unsatisfactory basis. Course offered and transcripted by Northern Oklahoma College.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

UNIV 0151 Supplement for Introductory Science
Prerequisites: Concurrent enrollment in a designated natural science (N) course.
Description: This course provides supplemental instruction for a designated natural science (N) course for students who do not meet entrance requirements for college-level science coursework. Students must be enrolled concurrently in a designated natural science (N) course. This supplement includes reviewing and learning basic reading skills, then applying those skills to science content. May be used to fulfill the science and reading remediation requirements as established by Oklahoma State Regents policy. The course is not acceptable for degree credit at Oklahoma State University. Graded on a satisfactory-unsatisfactory basis. Same course as UNIV 0153.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

UNIV 0153 Critical Content Reading and Scientific Reasoning
Description: Course in reading consisting primarily of reviewing and learning basic reading skills, then practicing and applying those skills to content area reading. May be used to fulfill the science and reading remediation requirements as established by Oklahoma State Regents policy. The course is not acceptable for degree credit at Oklahoma State University. Graded on a satisfactory-unsatisfactory basis. Course offered and transcripted by Northern Oklahoma College.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

UNIV 0163 Critical Reading with Science Reasoning and Writing
Description: Students with Reading and/or English ACT scores < 19 must enroll in this course. They cannot enroll in Composition I. This course replaces UNIV 0133 (the former Basic Composition) and UNIV 0153 (the former Critical Reading) courses. Students must successfully complete this course with a 70%. Course offered & transcripted by Northern Oklahoma College.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Dean of Arts & Science

UNIV 1111 First Year Seminar
Prerequisites: Designed for incoming undergraduate students.
Description: Aids students in becoming aware of campus resources, academic programs, and cocurricular offerings, exploring various majors and careers; understanding university academic rules and regulations; and enhancing study skills and attitudes that can contribute to academic success. Previously offered as AG 1011, ARCH 1112, A&S 1111, BADM 1111, BAE 1012, EDHS 1112, and ENGR 1111.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 1133 Introduction to Leadership in Practice
Description: Introduction to ethical leadership concepts, theories, and competencies, introduced through the study of leadership, civic engagement, and ethics.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 1311 McKnight Scholars Colloquium I
Prerequisites: Selection to McKnight Scholars Leadership Program.
Description: Develop and improve ability to identify values, envision the future, build strong relationships, encourage others, and to make a lasting contribution to society through applications of ethical leadership.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 2001 Academic Assessment and Evaluation
Description: Required for students in University Academic Assessment Program and available campus wide to students on academic probation. Identification of reasons for experiencing academic difficulty; assessment of reading ability and individual learning styles; understanding university policies and procedures and current issues in American education; development of goals, attitudes, and study skills needed to achieve academic success; and exploration of careers, majors, and alternative educational experiences.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 2010 Horizon Scholars Seminar in Social Sciences
Prerequisites: Horizon Scholars student
Description: Seminar for Horizon Scholars in social science disciplines. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 2020 Horizon Scholars Seminar in STEM
Prerequisites: Horizon Scholars student
Description: Seminar for Horizon Scholars in STEM. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 2030 Horizon Scholars Seminar in Arts and Humanities
Prerequisites: Horizon Scholars student
Description: Seminar for Horizon Scholars in arts and humanities. Offered for variable credit, 1-3 credit hours, maximum of 9 credit hours.
Credit hours: 1-3
Contact hours: Lecture: 1-3 Contact: 1-3
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 2133 Ethical Leadership Behavior in a Changing Society (S)
Description: This course equips students to integrate leadership theories and empirical methods to address complex issues through social and behavioral sciences. Emphasizing the Social Change Model, students analyze human behavior, apply real-world leadership concepts, and foster ethical behavior and collective action for positive social change.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College
General Education and other Course Attributes: Society & Human Behavior

UNIV 2311 McKnight Scholars Colloquium II
Prerequisites: Selection to McKnight Scholars Leadership Program.
Description: Informed by two leadership theories, transformational leadership theory and the culturally relevant leadership learning model, each student will grow their leadership efficacy and their critical thinking and decision-making skills as a leader.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 2510 Innovative Studies
Description: May be used for not more than two semesters for new or experimental topics or techniques. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: University College

UNIV 2511 Introduction to Health Careers
Description: 8-week course includes an overview and dialogue about all professional roles in healthcare. We include health profession guest speakers and activities to help you explore various options and validate your health profession interest. All levels of OSU students are welcome (Freshman-Senior if you are still exploring/deciding). Graded on a pass-fail basis.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 2611 Health Portfolio and Self-Development
Description: 8-week course designed for all OSU students who are 100% confident of their healthcare pathway and are ready to learn and plan how to grow into a holistically competitive future applicant. The course includes individual and group activities along with mentorship to prepare academically and non-academically for all professional healthcare schools. All levels of OSU students are welcome (Freshman-Senior). Graded on a pass-fail basis.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 2910 Niblack Research Scholars
Prerequisites: Current recipient of the Niblack Research Scholar Award.
Description: Scientific research in a laboratory environment at an early stage of an academic career. Offered for fixed, 1 fixed credit hour, maximum of 4 credit hours.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: University College

UNIV 3001 Academic Assessment for Transfer Students
Description: Required for students in transfer probation program and available campus wide to upper division students on probation. Assessment of individual learning ability and learning styles; understanding university policies and procedures related to transfer students and current issues in American education; development of goals, attitudes, and study skills needed to achieve academic success; and exploration of careers, majors, and alternative education experiences. No credit for student with credit in UNIV 2001.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 3090 National Student Exchange Plan B
Prerequisites: Consent of the Study Abroad/NSE Office. Participation in an OSU exchange on NSE Plan B exchange program.
Description: UNIV 3090 National Student Exchange Plan B. 1-19 credits, max. 38.
Credit hours: 1-19
Contact hours: Contact: 1-19 Other: 1-19
Levels: Undergraduate
Schedule types: Independent Study
Department/School: University College
Additional Fees: Study Away fee of $100 applies.

UNIV 3110 Directed Study
Prerequisites: Written application approved by instructor, the department head, and the dean of the student's college.
Description: Independent study, research, field work or internship. Some sections will be graded on a pass-fail basis. Offered for variable credit, 1-18 credit hours, maximum of 18 credit hours.
Credit hours: 1-18
Contact hours: Contact: 1-18 Other: 1-18
Levels: Undergraduate
Schedule types: Independent Study
Department/School: University College

UNIV 3311 McKnight Scholars Experiential Learning
Prerequisites: Selection to McKnight Scholars Leadership Program.
Description: McKnight Scholars Program experiential leadership course will provide students with guidance and information to help them be the most effective life-giving community leader they can be.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Undergraduate
Schedule types: Independent Study
Department/School: University College

UNIV 3413 International Perspective in Ethical Leadership for McKnight Scholars (G)
Prerequisites: Selection to McKnight Scholars Leadership Program / Instructor Approval.
Description: International travel course that will study ethical leadership, culture, social change model of leadership, and leadership cultural competencies.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College
General Education and other Course Attributes: International Dimension

UNIV 3423 International Perspective in Ethical Leadership for PLC (G)
Prerequisites: Selection to President's Leadership Council (PLC) / Instructor Approval.
Description: International travel course that will study the social change model of leadership, the culturally relevant leadership learning model, ethics, culture, and activism.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College
General Education and other Course Attributes: International Dimension

UNIV 3511 Health Profession School Preparation
Prerequisites: Highly Recommended: Junior/senior pre-health students.
Description: 6-week course designed for all OSU students who are holistically prepared to apply for a masters or doctoral healthcare program within that year. The course includes individual and group mentorship in the application and interview process, professional exam preparation and other important resources to help support a successful professional application submission and interview. Recommended for students who are applying to professional school within a year. Graded on a pass-fail basis.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 3910 Niblack Research Scholars - Advanced
Description: Second year Niblack Research Scholar performing advanced scientific research in a laboratory environment. Offered for variable credit, 1-9 credit hours, maximum of 9 credit hours.
Credit hours: 1-9
Contact hours: Lab: 2-18 Contact: 2-18
Levels: Undergraduate
Schedule types: Lab
Department/School: University College

UNIV 4511 Application of Ethical Leadership
Description: Supervised fieldwork experience in leadership and service learning in a community setting.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

UNIV 4950 Application of Ethical Leadership
Prerequisites: Consent of instructor.
Description: Supervised field work experience in leadership and service learning in a community setting. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Undergraduate
Schedule types: Independent Study
Department/School: University College

UNIV 4963 Ethical Leadership for the Common Good
Prerequisites: Selection to President's Leadership Council (PLC) / Instructor Approval.
Description: Intentional reflection on leadership experiences in our time at Oklahoma State so that students may be equipped with leadership skills that may be applied to life post-graduation. All assignments are connected to development of life-giving leaders.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: University College

Veterinary Clinical Sciences (VCS)

VCS 7000 Clinical Sciences Elective
Description: Subspecialty clinical elective course in veterinary medical clinical training. Graded on a pass/fail basis. Offered for variable credit, 2-4 credit hours, maximum of 4 credit hours.
Credit hours: 2-4
Contact hours: Contact: 2-4 Other: 2-4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7002 Anesthesiology
Description: Management of clinical anesthesia in various domestic species. Previously offered as VCS 7843. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7012 Anesthesiology Elective
Description: Expansion of the previously met requirements for the management of clinical anesthesia in various domestic species. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7022 Cardiology Elective
Description: Expansion of clinical experiences in veterinary cardiology. Previously offered as VCS 7913. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7032 Cardiology III
Prerequisites: Fourth-year standing in the College of Veterinary Medicine.
Description: Students will take part in outpatient receiving including history taking, cardiovascular examination, forming a problem list and case assessment and forming a treatment plan. Students will be responsible for preoperative and postoperative care of patients as well as the care of all hospitalized patients. Students will also assist with after-hours cardiology emergencies. Cardiology students also share EMS and isolation ward duties. Graded on a pass-fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7042 Small Animal Wellness & Disease Prevention
Description: Receiving and managing emergency and general medical and surgical cases in companion animals. Previously offered as VCS 7733.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7052 Small Animal Wellness & Disease Prevention Clerkship Elective
Description: Receiving and managing emergency and general medical and surgical cases in companion animals.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7062 Small Animal Primary Care Elective
Description: Expansion of previously met requirements in small animal general medicine and/or surgery. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7072 Diagnostics
Description: Clinical experiences in animal necropsy, clinical pathology, clinical parasitology, and other investigative methods to study diagnosis, prognosis, prevention and treatment of animals. Previously offered as VCS 7953. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7082 Equine Medicine
Description: Diagnosis, treatment, management, and prevention of equine medical diseases. Previously offered as VCS 7723. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7092 Equine Medicine Elective
Description: Expansion of the previously met requirements for the diagnosis, prognosis, treatment and prevention of equine medical diseases. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7102 Equine Medicine Clerkship
Description: Diagnosis, treatment, management, and prevention of equine medical diseases at approved, college-overseen, off-site equine practices. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7112 Equine Performance Medicine Elective
Description: Equine sports medicine diagnostic techniques and therapeutic approaches. Previously offered as VCS 7853. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci
Additional Fees: VM Consummable VCS 7112 fee of $50 applies.

VCS 7122 Equine Surgery and Sports Medicine Elective
Description: Expansion of the previously met requirements for the diagnosis, prognosis, treatment, and prevention of equine surgical diseases. Previously offered as VCS 7793. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7132 Equine Surgery and Sports Medicine
Description: Diagnosis, treatment, management, and prevention of equine surgical diseases. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7142 Externship I
Description: Off-site clinical experiences in veterinary medicine. Previously offered as VCS 7813. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7152 Externship II
Description: Off-site clinical experiences in veterinary medicine. Previously offered as VCS 7710 and VCS 7823. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7162 Externship III
Description: Off-site clinical experiences in veterinary medicine. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7172 Externship IV
Description: Off-site clinical experiences in veterinary medicine. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7182 Externship V
Description: Off-site clinical experiences in veterinary medicine. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7192 Externship VI
Description: Off-site clinical experiences in veterinary medicine. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7202 Field Services and Production Medicine Elective
Description: Ambulatory field service veterinary experiences with production animals. Previously offered as VCS 7893. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7212 Field Services and Production Medicine Clerkship
Description: Field service veterinary experiences with production animals with approved, college-overseen, off-site ambulatory practices. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7222 Food Animal Medicine and Surgery
Description: Diagnosis, treatment, management, and prevention of food animal diseases. Previously offered as VCS 7763. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7232 Food Animal Medicine and Surgery Elective
Description: Expansion of the previously met requirements in diagnosis, prognosis, treatment and prevention of food animal diseases. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7242 Food Animal Medicine and Surgery Clerkship
Description: Clinical experiences with food animals at approved, college-overseen, off-site food animal practices. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7252 Hospital Based Theriogenology Elective
Description: Diagnosis, treatment, and management of reproductive diseases in common domestic species. Previously offered as VCS 7933. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7262 Hospital Based Theriogenology III
Prerequisites: Fourth-year standing in the College of Veterinary Medicine.
Description: Students will admit and provide primary care with assistance from the surgery and medicine service to cases that are presented to the VTH with a primary theriogenology component. Managed companion animal cases include canine C-sections, canine breeding cycle management, canine pyometras and canine prostatic cases. Food Animal cases include bovine dystocias, BSEs, bull preputial lacerations, small ruminant dystocias, etc. Participation in morning case rounds in surgery and medicine sections (both large and small animal) will be attended when responsibility is shared. Graded on a pass/fail basis
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7272 Small Animal Emergency and Critical Care Elective
Description: Expansion of previously met requirements in small animal emergency and critical care. Previously offered as VCS 7703. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7282 Small Animal Emergency and Critical Care III
Prerequisites: VCS 7272 Small Animal Emergency and Critical Care I.
Description: Clinical rotation in small animal intensive care/critical and emergency medicine. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7292 Bovine Theriogenology Elective
Description: Clinical experiences in bovine reproductive management and disease. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7302 Equine Theriogenology Elective
Description: Clinical experiences in equine reproductive management and disease. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7312 Large Animal Theriogenology Elective I
Description: Clinical experiences in large animal reproductive management and disease. Previously offered as VCS 7770 and VCS 7773. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7322 Large Animal Theriogenology Elective II
Description: Expansion of clinical experiences in large animal reproductive management and disease. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7332 Large Animal Theriogenology Clerkship
Description: Clinical experiences in large animal reproductive management and disease at approved, college-overseen, off-site large animal practices. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7342 Ophthalmology
Description: Clinical experiences in small animal, equine, exotic, and food animal ophthalmology. Previously offered as VCS 7903. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7352 Ophthalmology Elective
Description: Expansion of clinical experiences in small animal, equine, exotic, and food animal ophthalmology. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7362 Professional Development Experience III
Description: Applied and clinical experiences in professional, organized, or regulatory veterinary medicine. Graded on a pass/fail basis. Previously offered as VCS 7833.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7372 Radiology
Description: Clinical experiences in diagnostic radiography, ultrasound, and other special imaging modalities. Previously offered as VCS 7713. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7382 Radiology Elective
Description: Expansion of previously met requirements in clinical experiences in diagnostic radiography, ultrasound, and other special imaging modalities. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7392 Small Animal Internal Medicine
Description: Diagnosis, treatment, and management of small animal internal medicine cases. Previously offered as VCS 7743. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7402 Small Animal Internal Medicine Elective
Description: Expansion of clinical experiences in the diagnosis, treatment, and management of small animal internal medicine cases. Previously offered as VCS 7512. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7412 Small Animal Internal Medicine III
Prerequisites: Fourth-year standing in the College of Veterinary Medicine.
Description: Diagnosis, prognosis, treatment and prevention of companion animal medical diseases. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7422 Small Animal Surgery
Description: Diagnosis, treatment, management, and prevention of small animal specialty surgical cases. Previously offered as VCS 7753. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7432 Small Animal Surgery Elective
Description: Expansion of clinical experiences in the diagnosis, treatment, management, and prevention of small animal specialty surgical cases. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7442 Surgical Fundamentals in Shelter Patients
Description: Clinical experiences in surgery and anesthesia with pet adoption candidates. Previously offered as VCS 7883. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7452 Ultrasound Elective
Description: Expansion of clinical experiences in veterinary ultrasonography. Previously offered as VCS 7863. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7462 Ultrasound/Clinical Pathology III
Prerequisites: Fourth-year standing in the College of Veterinary Medicine.
Description: Participants will attend radiology rounds daily as well as observing and/or performing diagnostic ultrasound exams on common domestic animal species, and, when not actively participating in a clinical ultrasound study, in library research on the subject. Graded on a pass/fail basis. Previously offered as VCS 7873.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7472 Zoological Medicine Elective I
Description: Diagnosis, treatment, and management of medical or surgical conditions in zoo, exotic pet and wildlife species. Previously offered as VCS 7780 and VCS 7783. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci
Additional Fees: VM Consummable VCS 7472 fee of $50 applies.

VCS 7482 Zoological Medicine Elective II
Description: Expansion of clinical experiences in the diagnosis, treatment, and management of medical or surgical conditions in zoo, exotic pet and wildlife species. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci
Additional Fees: VM Consummable VCS 7482 fee of $50 applies.

VCS 7492 Applied Canine Exercise Physiology Elective
Description: Clinical experiences with the diagnosis, treatment, management, and prevention of exercise-specific injuries and disease in elite canine athletes and working dogs. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7502 Small Animal Internal Medicine Clerkship
Description: Expansion of clinical experiences in the diagnosis, treatment, and management of small animal internal medicine cases at approved, college-overseen, off-site practices with a boarded veterinary internist. Previously offered as VCS 7743. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7512 Small Animal Medicine Elective
Description: Expansion of previously met requirements for clinical experiences in small animal preventive care and the diagnosis, treatment, management, and prevention of small animal general medical diseases. Same course as VCS 7402. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7522 Small Animal Medicine Clerkship III
Description: Designed to expose students to all aspects of small animal medicine cases at designated small animal veterinary practices. Same course as VCS 7412. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7532 Applied Diagnostic Medicine Elective
Description: Expansions of clinical experiences in the diagnosis of diseases commonly seen at the Oklahoma Animal Disease Diagnostic Laboratory. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7542 Small Animal Emergency and Critical Care Clerkship
Description: Clinical experiences in small animal emergency and critical care at approved, college-overseen, off-site emergency practice. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7552 Public Health Practice for Veterinarians I
Description: Clinical year elective for students enrolled in the MPH Program intended to demonstrate competency in public health practice for veterinarians. Same course as MPH 5030. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7562 Public Health Practice for Veterinarians II
Description: Expansion of the clinical year elective for students enrolled in the MPH Program intended to demonstrate competency in public health practice for veterinarians. Same course as MPH 5030. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7572 Advanced Small Animal Ultrasound III
Description: This course is comprised of management of clinical cases, self-study, and hands-on instructional sessions.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7582 Externship VII
Description: Off-site clinical experiences in veterinary medicine. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7592 Behavior Medicine Elective
Description: Clinical reinforcement through the application of basic procedures and methods for diagnosing and treating common behavioral problems of the dog and cat. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7602 Dermatology Elective
Description: Expansion of clinical experiences in veterinary dermatology. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7612 Small Animal General Medicine
Description: Clinical experiences in small animal preventive care and the diagnosis, treatment, management, and prevention of small animal general medical diseases. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7622 Small Animal General Surgery and Dentistry
Description: Clinical experiences in the diagnosis, treatment, management, and prevention of small animal general surgical cases and dentistry. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7632 Small Animal Emergency and Critical Care
Description: Clinical experiences in small animal emergency and critical care. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7642 Small Animal General Medicine Clerkship
Description: Expansion of previously met requirements for clinical experiences in small animal preventive care and the diagnosis, treatment, management, and prevention of small animal general medical diseases at approved, college-overseen, off-site small animal practice. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7652 Small Animal General Surgery and Dentistry Clerkship
Description: Diagnosis, prognosis, treatment and prevention of general surgical diseases. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7662 Large Animal Emergency and Critical Care
Description: Clinical experiences in large animal emergency and critical care. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7672 Dermatology Externship
Prerequisites: Fourth-year standing in the College of Veterinary Medicine.
Description: This two-week elective clinical rotation in dermatology is open to all 4th-year veterinary students. The elective emphasizes application of knowledge and skills learned in pre-clinical dermatology coursework, with hands-on patient care in the Veterinary Teaching Hospital (VTH). Students will participate in patient appointments, diagnostic procedures, dermatology service rounds, and grand rounds. The elective highlights both evidence-based dermatology practices and practical clinical approaches to common cases. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7682 Equine Ambulatory Elective
Description: Two-week elective rotation providing hands-on experience with equine ambulatory practice. Students gain skills in preventive medicine, lameness evaluation, dentistry, reproductive exams, emergency care, and client communication in field settings. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7692 International Externship
Description: An off-campus externship providing international clinical and cultural veterinary experiences. Students engage in patient care under supervision at an approved host institution. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7702 Neurology Elective
Description: Two-week elective rotation emphasizing diagnosis and management of neurological conditions in small animals. Includes case workups, advanced imaging, electrodiagnostics, medical and surgical management, and rounds. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Veterinary Clinical Sci

VCS 7912 Grand Rounds
Description: Seminar course on selected clinical and professional topics delivered by fourth-year veterinary students, departmental faculty, and invited experts. Graded on a pass/fail basis.
Credit hours: 2
Contact hours: Contact: 2 Other: 2
Levels: Professional
Schedule types: Independent Study
Department/School: Veterinary Clinical Sci

Veterinary Medical Education (VME)

VME 7111 Critical Thinking, Clinical Skills, & Communication I
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: This course is the first in a series that will focus on the growth of clinical reasoning, communication and technical skills necessary for the development and training of students in the DVM program. Students will further expand with practice and exposure through a series of clinical skills courses spanning years 1-3 of the curriculum with increasing complexity, understanding and integration of knowledge.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Professional
Schedule types: Clinical
Department/School: Dean of Veterinary Med

VME 7121 Professional Skills I
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Introduction to non-technical aspects of veterinary medicine that are critically important in practice and success in the profession. Main topics include career options under the umbrella of veterinary medicine, jurisprudence, ethics, government regulations, stressors in practice, coping mechanisms and self-management skills for the profession.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7136 Veterinary Physiology & Histology I
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Scientific, evidence-based veterinary practice is based on an understanding of the normal function of the veterinary patient. The purpose of this course, as well as the following course (Physiology & Histology II) is to provide the students in the veterinary professional curriculum with clinically relevant knowledge of normal physiology through the full-range of animal organization (cellular, tissue, organ, organ system, and organism). This course will also provide the necessary foundation to support subsequent courses throughout the veterinary professional curriculum related to the diagnosis, treatment, and prevention of animal diseases.
Credit hours: 6
Contact hours: Lecture: 6 Contact: 6
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7144 Gross & Developmental Anatomy
Description: Embryology and anatomy of domestic mammals using the dog as the primary model, integrated lecture-dissection laboratory format. Emphasis on the integration of developmental gross, radiographic and applied aspects of veterinary anatomy as they relate to a topographical appreciation of the living individual. Previously offered as VMED 7144.
Credit hours: 4
Contact hours: Lecture: 1 Lab: 6 Contact: 7
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7153 Veterinary Immunology
Description: Basic principles of immunology and their application to veterinary medicine. Course previously offered as VMED 7250 and VMED 7253.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7161 Epidemiology & Evidence-Based Medicine
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Principles and uses of evidence-based practice of veterinary medicine; comprehension and utilization of scientific research; interpretation of basic concepts of observational study of disease.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7171 Nutrition
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Students will learn skills to evaluate for nutritional sufficiency in individual patients or group/herd management, symptoms of nutritional deficiencies and toxicities, and the value of therapeutic diets for various disease conditions in small and large animals.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7211 Critical Thinking, Clinical Skills, & Communication II
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: This course is in the second in a series that will focus on the growth of clinical reasoning, communication, and technical skills necessary for the development and training of students in the DVM program. Students will further expand with practice and exposure through a series of clinical skills courses spanning years 1-3 of the curriculum with increasing complexity, understanding, and integration of knowledge.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Professional
Schedule types: Clinical
Department/School: Dean of Veterinary Med

VME 7221 Professional Skills II
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Introduction to non-technical aspects of veterinary medicine that are critically important in practice and success in the profession.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7236 Veterinary Physiology & Histology II
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Scientific, evidence-based veterinary practice is based on an understanding of the normal function of the veterinary patient. The purpose of this course is to provide the students in the veterinary professional curriculum with clinically relevant knowledge of normal physiology through the full range of animal organization (cellular, tissue, organ, organ system, and organism) as a continuation of Physiology & Histology I. This course will also provide the necessary foundation for subsequent courses throughout the curriculum related to the diagnosis, treatment, and prevention of animal diseases.
Credit hours: 6
Contact hours: Lecture: 6 Contact: 6
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7243 Comparative Anatomy
Description: Comparative and functional gross anatomy of domestic mammals. Emphasis on the integration of developmental gross, radiologic, and applied clinical aspects of veterinary anatomy as they relate to a topographical appreciation of the living individual, integrated lecture-dissection laboratory format. Course previously offered as VMED 5243 and VMED 7243.
Credit hours: 3
Contact hours: Lecture: 1 Lab: 4 Contact: 5
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7253 Clinical Pathology
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Basic concepts pertinent to data interpretation and laboratory methods used in evaluation of disease. Course previously offered as VMED 7363.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7264 General Pathology
Description: Cellular and tissue pathology, pigments, inflammation, immunopathology, disturbances of growth and circulation, and neoplasia. Functional disturbances that accompany changes in structures as well as the causes and pathogenesis of diseases. Course previously offered as VMED 5264 and VMED 7264.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7312 Critical Thinking, Clinical, Skills, & Communication III
Prerequisites: Second-year standing in the College of Veterinary Medicine.
Description: This course is the third in a series that will focus on the growth of clinical reasoning, communication, and technical skills necessary for the development and training of students in the DVM program. Students will further expand with practice and exposure through a series of clinical skills courses spanning years 1-3 of the curriculum with increasing complexity, understanding, and integration of knowledge.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Dean of Veterinary Med

VME 7325 Veterinary Parasitology
Description: Understand the principles that govern parasites of veterinary medical importance. Apply knowledge from lectures, class discussions, and case-based labs to diagnose, treat, control, and prevent these parasitic infectious agents. Previously offered as VMED 7223.
Credit hours: 5
Contact hours: Lecture: 3 Lab: 4 Contact: 7
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7333 Pharmacology I
Description: Introduction of the principles of pharmacodynamics, drug disposition and pharmacokinetics. Pharmacological effects, mechanisms of actions, metabolism, disposition, clinical indications and toxic effects of drugs acting on the autonomic, central nervous, cardiovascular, respiratory, and renal systems. Previously offered as VMED 7333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7343 Diagnostic Imaging
Description: Radiographic theory, techniques, and interpretation. Introduction to alternate methods, including ultrasonography. Previously offered as VMED 7443.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7353 Veterinary Virology
Description: Course covers important animal diseases caused by viruses. These infectious diseases will be taught in an animal systems approach. An overview of veterinary virology and the different viral diseases of animals will be covered. Material for each of the viral infections includes the mechanisms of the disease processes and the relationship of such processes to disease development, diagnosis, treatment and control. Also covered are the relationships of zoonotic diseases to community and environmental health as well as important zooneses. Previously offered as VMED 7454.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7363 Toxicology
Description: Diagnosis and management of intoxications involving plant, chemical and biological toxins. May not be used for degree credit with VMED 7533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7412 Critical Thinking, Clinical Skills, & Communication IV
Prerequisites: Second-year standing in the College of Veterinary Medicine.
Description: This course is the fourth in a series that will focus on the growth of clinical reasoning, communication and technical skills necessary for the development and training of students in the DVM program. Students will further expand with practice and exposure through a series of clinical skills courses spanning years 14 of the curriculum with increasing complexity, understanding and Integration of knowledge.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Dean of Veterinary Med

VME 7421 Professional Skills III
Prerequisites: Second-year standing in the College of Veterinary Medicine.
Description: This course continues instruction in the non-technical aspects of veterinary education focused on personal and professional development. The course is divided Into two sections. The first set of topics Is focused on personal development focused on relationships in a practice setting: providing constructive feedback to peers and mentors, utilizing feedback to enhance team performance and developing effective leadership skills. The second set of topics identifies strategies to apply the principles of successful veterinary practice management
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7433 Food Safety & Public Health
Prerequisites: Second-year standing in the College of Veterinary Medicine.
Description: Approaches and skills for identifying, investigating and mitigating occurrences of disease outbreaks; introduction to zoonotic diseases; role veterinarians play in protecting public health; potential human health hazards in foods of animal origin. Course previously offered as VMED 5313 and VMED 7413.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7444 Veterinary Bacteriology & Mycology
Prerequisites: Second-year standing in College of Veterinary Medicine.
Description: Important animal diseases caused by bacteria and fungi will be covered on a system basis. Mechanisms of infectious disease processes and the relationship of such processes to disease development, diagnosis, treatment and control. The relationship of zoonotic diseases to community and environmental health as well as important zoonoses. Course previously offered as VMED 7350 and VMED 7354.
Credit hours: 4
Contact hours: Lecture: 3 Lab: 2 Contact: 5
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7452 Pharmacology II
Prerequisites: Second-year standing in the College of Veterinary Medicine.
Description: Continuation of VMED 7333 that includes the mechanisms of action, disposition, adverse effects, and indications for groups of pharmacological agents used in veterinary medicine. Course previously offered as VMED 5432 and VMED 7432.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7463 Anesthesiology & Analgesia
Prerequisites: Second-year standing in the College of Veterinary Medicine.
Description: Application of the principles of veterinary anesthesiology to incorporate fundamental aspects of physiology and pharmacology in the anesthetic management of important domestic species. Course previously offered as VMED 5412 and VMED 7412.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7472 Hemolymphatics & Oncology
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the blood and lymphatic system. Same course as CBSC 5482. Previously offered as VMED 5582 and VMED 7482.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7481 Introduction to Exotic Animal Medicine
Prerequisites: Second-year standing In the College of Veterinary Medicine.
Description: This course will provide introductory level knowledge on exotic animal (avian, reptile, and email mammals) medicine. Course will focus on common species and will provide information on the species natural history and biology, common diseases/presentations, and preventive medicine. The content covered by this class will focus on the basic knowledge a general practitioner should have to provide basic care for non-traditional species.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7512 Critical Thinking, Clinical Skills, & Communication V
Description: This course is fifth in a series that will focus on the development of clinical reasoning, communication, and technical skills necessary for the training of students in the DVM program. Students will expand with practice and exposure through a series of clinical skills courses spanning years 1-3 of the curriculum with increasing complexity, understanding and integration of knowledge.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Dean of Veterinary Med

VME 7522 Junior Surgery I
Description: Introduction to fundamental principles of surgery. Didactic material will be followed by surgical laboratories. Previously offered as VMED 7592.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7533 Musculoskeletal
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Pathology, pathogenesis, diagnosis, treatment, and prevention of diseases related primarily to the musculoskeletal system of domestic animals. Previously offered as VMED 7563.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7543 Theriogenology
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the reproductive system. Previously offered as VMED 7674.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7552 Veterinary Endocrinology
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the endocrine system.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7564 Cardiopulmonary
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the cardiovascular and respiratory systems. Previously offered as VBSC 5564 and VMED 7664. Same course as CBSC 5564.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7572 Primary Care I
Description: This course offers a focused study on essential preventive care strategies for dogs, cats, horses, and ruminants, including basic herd health for livestock species. Students will learn to design vaccination and parasite control programs, ensuring the health and longevity of these species. The course also covers the fundamentals of dental care, behavior, and nutrition, highlighting their impact on overall wellness.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7612 Critical Thinking, Clinical Skills, & Communication VI
Description: This course is the sixth in a series that will focus on the development of clinical reasoning, communication, and technical skills necessary for the training of students in the DVM program. Students will expand with practice and exposure through a series of clinical skills courses spanning years 1-3 of the curriculum with increasing complexity, understanding and integration of knowledge.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Dean of Veterinary Med

VME 7621 Professional Skills IV
Description: This course continues instruction in the non-technical aspects of veterinary education focused on personal and professional development.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7631 Junior Surgery II
Description: Introduction to fundamental principles of surgery. Didactic material will be followed by surgical laboratories. Previously offered as VMED 7601.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Professional
Schedule types: Lab
Department/School: Dean of Veterinary Med

VME 7644 Alimentary
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the alimentary system. Previously offered as VBSC 5564 and VMED 7664. Same course as CBSC 5564.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7652 Ophthalmology
Description: Pathogenesis, diagnosis, medical and surgical treatment, and prevention or ophthalmic diseases in small animal and equine patients. Course previously offered as VMED 7502.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7662 Urinary
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the urinary system. Course previously offered as VMED 7662.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7672 Neurology
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment and prevention of nervous system diseases. Course previously offered as VMED 7612.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VME 7682 Primary Care II
Description: This course offers a focused study on essential preventive care strategies for dogs, cats, horses, and ruminants, including basic herd health for livestock species. Students will learn to design vaccination and parasite control programs, ensuring the health and longevity of these species. The course also covers the fundamentals of dental care, behavior, and nutrition, highlighting their impact on overall wellness.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VME 7692 Dermatology
Description: Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to skin (nine-week module). Previously offered as VMED 7583.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

Veterinary Medicine (VMED)

VMED 7113 Veterinary Physiology II
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Study of molecular, cellular and organ system physiology with emphasis on establishing a base of knowledge and understanding requisite courses within the curriculum of veterinary medicine. Continuation of VMED 7114. (8 week course) Previously offered as VMED 7120.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7114 Veterinary Physiology I
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: To introduce students to the relevant concepts of cell physiology and cardiovascular physiology, providing a foundation for Physiology II and III, clinical coursework and clinical rotations. Previously offered as VMED 7110.
Credit hours: 4
Contact hours: Lecture: 4 Contact: 4
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7123 Veterinary Histology
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Organization and structure of cells and tissues of domestic animals. Previously offered as VMED 5123.
Credit hours: 3
Contact hours: Lecture: 2 Lab: 2 Contact: 4
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VMED 7152 Zootechnology
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Animal breeds and identification, animal production and marketing systems and animal handling and restraint as it applies to production and marketing. Previously offered as VMED 5152.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7162 Orientation to the Veterinary Medical Profession
Prerequisites: First year standing in College of Veterinary Medicine.
Description: Introduction to veterinary jurisprudence, ethics, licensing, government regulations, human-animal bond, and evolving issues in animal law and animal welfare.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7235 Veterinary Physiology III
Prerequisites: First-year standing in the College of Veterinary Medicine.
Description: Molecular, cellular and organ system physiology. Establishing a base of knowledge and understanding requisite to subsequent courses. Previously offered as VMED 7230.
Credit hours: 5
Contact hours: Lecture: 5 Contact: 5
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7401 Introduction to Beef Production Medicine Elective
Prerequisites: Second-year or third-year standing in the College of Veterinary Medicine.
Description: This course will provide students with an understanding of the beef production industry in the United States. Students will gain an understanding of the importance of beef production to the US and global food production, the structure and function of the US beef industry, and the role of a veterinarian in beef production medicine. The course will be a combination of lecture and discussion format. If possible, the course will also include field trips to visit examples of the various segments of the beef industry.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7411 Best Practices Business Model for Veterinarians Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Online introduction to personal financial literacy and business management. This is a modular-format, online accessible course constructed by the Beef Cattle Institute at Kansas State University. Students will complete the course at their own pace. Graded on a pass/fail basis. Previously offered as VMED 7410.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

VMED 7431 Small Animal Nutrition Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Discussion of clinical nutrition for dogs and cats, designing a feeding plan for small animal patients and nutritional management of various disease states. Discussions will include nutritional assessment, how to read a pet food label, how to evaluate unconventional diets, feline nutrition, and nutritional case management. Types of cases that will be covered include canine and feline obesity, gastrointestinal diseases and critical care cases.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7441 Intro to Veterinary Emergency Response and Disaster Management Elective
Description: This course will introduce the principles and structure of emergency management Including the incident Command System and the hierarchies. Basics of animal disaster management, including hazard recognition, disaster life cycle, development of Emergency Operations Plans, and veterinarian's role In disasters from the state to local level will be presented as well as management and sheltering of small and large animals pre and post disasters. Veterinary business emergency plans will be discussed.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7451 Advanced Veterinary Clinical Parasitology Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Offers an opportunity to explore key topics in veterinary parasitology in greater depth, including perceptions of parasites in society, diagnostic challenges in medicine, the scientific evidence behind parasiticide resistance and toxicity, and the marketing of parasiticides in veterinary medicine. In addition, students are guided through the process of developing and communicating management strategies for specific parasite challenges.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7481 Special Topics in Applied Anatomy: A Case-Based Approach Elective
Prerequisites: First, second or third-year standing in the College of Veterinary Medicine.
Description: Students will choose a small or large animal topic where anatomy plays a role in either the cause or treatment of the condition (or both). The IOR/student will contact an appropriate clinical faculty member who will choose a case from the VTH representing the condition of choice, the student will prepare a 20-30 minute presentation discussing the condition relevant anatomy and present case example from vth.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

VMED 7510 Research Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Participation in faculty-directed projects to enhance career development in veterinary biomedical research. Students participate in a process mimicking investigator-initiated research by developing a research proposal, participating in a competitive peer-review process, and reporting on completed research project. Letter grade to be assigned. Course previously offered as VMED 5510. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.
Credit hours: 1-2
Contact hours: Contact: 1-2 Other: 1-2
Levels: Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

VMED 7512 Laboratory Animal Medicine Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Introductory course focusing on the biology and major diseases of commonly used laboratory animals. Course previously offered as VMED 7721.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7513 Veterinary Acupuncture Elective
Description: The Veterinary Acupuncture Elective is an integrative treatment modality that immerses students in a series of hybrid online lectures and in-person laboratory sessions.
Credit hours: 3
Contact hours: Contact: 3 Other: 3
Levels: Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

VMED 7521 Veterinary Practice Management Elective
Prerequisites: Second- or third-year standing in College of Veterinary Medicine.
Description: Skills and background for success as an employee in private veterinary practice. Successful practice is defined in terms of the perceived value received in the delivery of veterinary medical services, doctor-client communication skills, and aesthetic quality of the environment in which services are delivered. Business management of private practice, personal finances, and personnel management. Course previously offered as VMED 5521.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7522 Small Animal Medical Diagnosis: Signs and Symptoms Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Introduction to clinical problem solving through application of a problem-oriented approach to clinical diagnosis. Discussion of major problems (clinical signs and symptoms) affecting animals, and the pathophysiology of each clinical sign, its differential diagnosis and symptomatic management. Review of key anatomical, pathological and immunological concepts learned in basic science courses. Course previously offered as VMED 5522.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7533 Toxicology
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Diagnosis and management of intoxications involving plant, chemical and biological toxins. Course previously offered as VMED 6533.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7541 Introduction to Food Animal Production Systems Elective
Prerequisites: Second-year or third-year standing in the College of Veterinary Medicine.
Description: Consists of a week-long field trip of food animal production operations in Oklahoma and Texas providing exposure to beef cattle, swine and dairy production industries. Includes group presentation of the experience.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med
Additional Fees: VM Course Suppy & Mat VMED7541 fee of $50 applies.

VMED 7542 Clinical Endocrinology I Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Advanced medical endocrinology addressing diagnostic endocrinology and therapeutic endocrinology. Diagnostic endocrinology shall examine the physiological and medical basis for selecting provocative or non-provocative testing procedures as an adjunct to completing a definitive diagnosis. Therapeutic endocrinology involves the use of diagnostic endocrinology to evaluate the efficacy of medical treatment of endocrinopathies and the medical use of hormonal preparations to control animal physiology or endocrinology and non-endocrine diseases.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7551 Food Animal: Advanced Techniques Elective
Prerequisites: Second-year standing in the College of Veterinary Medicine.
Description: This elective is designed to give second year students the opportunity to learn how to perform some of the most commonly performed procedures in food animal medicine in regards to the modalities of treatment, diagnostics, herd health, local anesthesia and Pharmacology. One hour per week will be spent as formal lecture to provide some theory for the procedures and techniques to be performed during the laboratory periods.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Professional
Schedule types: Lab
Department/School: Dean of Veterinary Med

VMED 7561 Introduction to Shelter Medicine Elective
Prerequisites: Second-year or third-year standing in the College of Veterinary Medicine.
Description: Introduction course on topics relevant to shelter medicine. Discusses major subjects and issues important to practicing medicine in the shelter setting.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7562 Avian and Exotic Pet Medicine Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Clinical diagnosis, management and treatment, prognosis, and prevention of diseases in avian and exotic pets. Introductory material provided to familiarize students with the species discussed and where clinically important; however, student understanding of the basic sciences required and assumed. Course previously offered as VMED 5562.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7572 Introduction to Behavioral Medicine Elective
Description: Normal behavior of the dog and cat, basic procedures and methods for diagnosing and treating behavioral problems. Previously offered as VMED 5571 and VMED 7571.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2 Contact: 3
Levels: Professional
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Dean of Veterinary Med

VMED 7591 International Veterinary Medicine Elective
Prerequisites: Second-year or third-year standing in the College of Veterinary Medicine.
Description: Overview of the importance of veterinarians and the wide range of activities in which they participate around the world including the military, public health agencies, humanitarian relief agencies, wildlife preservation groups and faith-based agencies.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7610 Basic Science Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Problems in the basic sciences taught as lecture or lab. Previously offered as VMED 6610. Graded on a pass-fail basis.
Credit hours: 1-4
Contact hours: Contact: 1-4 Other: 1-4
Levels: Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

VMED 7630 Clinical Science Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Problems in the clinical sciences taught as lecture or lab. Previously offered as VMED 7620. Graded on a pass-fail basis.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

VMED 7651 Equine Theriogenology Laboratory Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Introduction to palpation, ultrasonographic examination and breeding preparation of the mare reproductive tract.
Credit hours: 1
Contact hours: Lab: 2 Contact: 2
Levels: Professional
Schedule types: Clinical
Department/School: Dean of Veterinary Med
Additional Fees: VM Consummable VMED 7651 fee of $300 applies.

VMED 7652 Introduction To Clinics II
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Rotations through instructional and service areas, including the Veterinary Teaching Hospital of the College of Veterinary Medicine. Previously offered as VMED 6652.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Dean of Veterinary Med

VMED 7661 Infectious and Parasitic Diseases of Wild Animals Elective
Description: Systematic approach to infectious and parasitic diseases affecting wild animals. Capture, restraint, and disease recognition in wild species, population management implications of disease diagnosis. Previously offered as VMED 5661.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7671 Clinical Endocrinology II Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Advanced medical endocrinology, focusing on endocrine diseases associated with (1) dysfunction of the endocrine pancreas, (2) selected endocrineopathies of the reproductive system, and (3) therapeutic use of hormones to control reproductive activity of animals.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7672 Swine Production and Diseases Elective
Prerequisites: Second or third-year standing in the College of Veterinary Medicine.
Description: Problem-based course related to swine diseases and production systems.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7681 Case Studies In Clinical Neurology Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Case based, problem oriented clinical diagnosis, management, treatment and prevention of small animal neurological diseases.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7682 Small Ruminant Production, Management, Medicine and Surgery Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Production, management, medical and surgical diseases of sheep, goats, and llamas used for production and companion animals. Previously offered as VMED 5682.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7692 Veterinary Dental Education Online and Practical Dentistry Elective
Description: -
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Clinical
Department/School: Dean of Veterinary Med

VMED 7710 Veterinary Study Abroad Elective
Prerequisites: Second- or third-year standing in the College of Veterinary Medicine.
Description: Participation in international animal health activities having an educational component, either through didactic instruction, service learning, workshop participation, and others. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

VMED 7711 Problem-Based Ophthalmology Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine. Case-based, problem-oriented discussions of small animal and equine ophthalmology cases.
Description: Case-based, problem-oriented discussions of small animal and equine ophthalmology cases. Key points in the case history, the significance of signalment in the diagnosis, clinical diagnosis, supportive diagnostic tests, and treatment. General discussion of the specific disease following the case discussion.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7712 Systemic Pathology: Case Studies and Mechanisms of Disease Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Selected diseases of major organ systems will be approached as an exercise in critical diagnostics thinking. Review of salient pathological responses for each system. Relevant journal articles to emphasize need for continued, self-guided learning.
Credit hours: 2
Contact hours: Lecture: 1 Contact: 2 Other: 1
Levels: Professional
Schedule types: Discussion, Combined lecture & discussion, Lecture
Department/School: Dean of Veterinary Med

VMED 7742 Bovine Theriogenology and Regulatory Medicine Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Palpation techniques in cows. Previously offered as VMED 7741.
Credit hours: 2
Contact hours: Lab: 4 Contact: 4
Levels: Professional
Schedule types: Lab
Department/School: Dean of Veterinary Med
Additional Fees: VM Consummable VMED 7742 fee of $250 applies.

VMED 7761 Introduction to Integrative Medicine: An Investigation into Holistic Veterinary Medicine Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: This course will provide an overview of current modalities being utilized as alternative therapies in Veterinary Medicine. The student will gain an appreciation for the importance of complementary medicine, and the evidence available to support its use. Students will also gain an understanding of critically assessing the research available and determining whether the information is clinically relevant.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7771 Essentials in Equine Practice: Medicine Elective
Description: Topics are related to equine medicine, ophthalmology, cardiology, and/or theriogenology that are not covered in detail in core curriculum. Aim is to supplement information and provide exposure to basic clinical techniques commonly performed in equine practice. A clinical perspective will be emphasized and hands-on laboratories used as an adjunct when appropriate.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med
Additional Fees: VM Consummable VMED 7771 fee of $450 applies.

VMED 7781 Professional Veterinary Medicine
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: A capstone course preparing third-year veterinary students for clinical training. Topics include: non-technical skills, knowledge, aptitudes, and attitudes; veterinary career opportunities in public practice, and preparation for the North American Veterinary Licensing Examination (NAVLE).
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7811 Basic Techniques in Equine Surgery and Sports Medicine Elective
Description: To provide the equine or mixed animal practice oriented student with in-depth knowledge/techniques concerning topics and procedures important for success in equine practice. Focuses on topics relative to the practice of equine sports medicine and minor surgery (lameness examination, castration, field anesthesia). Material will be applied to hands-on laboratories using models, live horses and/or cadaver specimens when appropriate.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7822 Food Animal Production Medicine Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Production animal agriculture and the veterinarian's present and future role in these enterprises. Cattle production is emphasized. Cycles of production, economics and health programs will be discussed. For students intending to enter mixed animal or exclusive food animal practices. Course previously offered as VMED 6622.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7841 Food Animal Surgery Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Detailed examination and review of commonly utilized local anesthetic techniques, injectable anesthetic techniques, and surgical procedures in food animal practice. Major topics include digital, mammary, gastrointestinal, and urethral surgery as well as cesarean section. Course previously offered as VMED 6641.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7861 Cytology Elective
Description: An introduction to clinical diagnosis using cytology. Topics include sample collection, inflammatory lesions, neoplasia, lymph node cytology, respiratory washes, synovial fluids, and body cavity effusions. The course consists of lectures, multi-head microscope and individual microscope laboratories; cases will be predominantly small animals.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7881 Introduction to Ultrasound Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: This course will teach the principles of ultrasound imaging, focusing on small animal imaging, but will have general topics as well that apply to all species and applications.
Credit hours: 1
Contact hours: Lecture: 1 Contact: 1
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7902 Small Animal Emergency and Critical Care Elective
Prerequisites: Third-year standing in the College of Veterinary Medicine.
Description: Emergency conditions and patients In shock states require rapid assessment, evaluation, Interpretation of the parameters, and Institution of the appropriate treatment to improve the patient's prognosis. This course will provide resources to prepare the student for these very common situations In emergency and critical care medicine. The course is based on lectures, case-based discussions, end two practical activities. In the first practical activity, students will be able to practice thoracocentesls, abdominocentesie, chest tube placement, endotracheal intubation, venous access via cutdown technique, and tracheostomy tube placement. Cadavers will be used for this activity. The second practical activity will involve monitoring techniques such as ECO tracing interpretation, performing a FAST scan, performing blood pressure measurement pulse oximetry placement and evaluation, and basic analysis of a blood gas.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Professional
Schedule types: Lecture
Department/School: Dean of Veterinary Med

VMED 7941 Clinical Skills Outcomes Assessment
Prerequisites: Fourth-year standing in the College of Veterinary Medicine.
Description: Assessment of clinical skills using checklists and/or brief case summaries.
Credit hours: 1
Contact hours: Contact: 1 Other: 1
Levels: Professional
Schedule types: Independent Study
Department/School: Dean of Veterinary Med

Workforce and Adult Education (WAED)

WAED 5000 Thesis or Report
Description: Students studying for a master's degree may enroll for a total of two credit hours if they write a report or six hours if they write a thesis. Students working on a specialist's degree may earn a maximum of 10 hours credit. Previously offered as OCED 5000. Offered for variable credit, 2-10 credit hours, maximum of 10 credit hours.
Credit hours: 2-10
Contact hours: Contact: 2-10 Other: 2-10
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 5010 Seminar
Description: Graduate student seminars focusing on current and critical issues and common problems relevant to workforce and adult education. Previously offered as OCED 5010. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 5013 Foundations and Characteristics of Adult Learning
Description: Societal trends and issues which have influenced the development and current status of workforce and adult education. Learning patterns, interests and participation among adults in a variety of educational settings. Previously offered as HRAE 5213 and EDLE 5313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5110 Career and Technical Information
Description: New development in scientific and technical information and knowledge that are relevant to current career, technical and trade practices. May not be used for degree credit with CTED 4110. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 5113 Principles of Leadership in Workforce Education
Description: Principles and analysis of leadership in today's workforce education organizations and the effect of leadership practices on organizational climate and governance. Understanding today's labor market and the connection among education, government, and workforce development policy. Previously offered as OCED 5113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5123 Administration & Evaluation of Workforce and Adult Education
Description: Principles of effective planning, administration and evaluation of workforce and adult education settings. Techniques and strategies for designing, conducting, reporting, and applications of evaluations. Course previously offered as TIED 5223 and OCED 5123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5133 Internationalism, Globalization and Workforce Education
Description: Preparing a globally competitive workforce. Analysis of comparative international occupational/technical education systems, and critical issues in internationalism and globalization in workforce education development. Course previously offered as OAED 5133 and OCED 5133.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5143 Organization and Administration of Adult Education
Description: Organizational procedures and administrative practices for effective planning, implementation and management of adult and continuing education programs. Analyses of legislation, finances and community groups that influence and impact upon adult and continuing education programs. Previously offered as HRAE 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5153 Curriculum Planning in Workforce and Adult Education
Description: Principles and procedures for curriculum planning, development and management in workforce and adult education with analyses of current trends and practices and their implications for program quality. Course previously offered as OAED 5153 and OCED 5153.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5163 Instructional Procedures in Career and Technical Education
Description: Methods and techniques for effective teaching and learning in career and technical classroom, laboratories, and technology-based environments. May not be used for degree credit with CTED 4103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5170 CTED Workshop
Description: Professional workshops of various topics and lengths. Focus on a particular topic from such areas as the development, use, and evaluation of instructional methods and materials. May not be used for degree credit with WAED 4010. Offered for variable credit, 1-6 credit hours, maximum of 12 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 5183 Coordinating Career and Technical Student Organizations and Activities
Description: Student organizations and activities in career and technical education at local, state and national levels. Procedures for planning programs of work, incorporation of student organization activities into curriculum, adviser characteristics and responsibilities, fund-raising activities, and techniques for recognizing outstanding members and community supporters. May not be used for degree credit with CTED 4123.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5193 Safety, Organization and Management of Learning Facilities
Description: Techniques and procedures for organizing and managing career and technical laboratory facilities and learner activities to enhance the quality of instruction and improve efficiency of equipment and space utilization, including all safety rules and procedures. May not be used for degree credit with CTED 4213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5203 Foundations of Adult and Continuing Education
Description: Societal trends, issues and institutions which have influenced the development and current status of adult and continuing education. Analyses and critiques of contemporary adult and continuing education activities, materials and clientele groups served, and their implications for new existing programs in the field. Previously offered as HRAE 5203 and EDLE 5203.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5213 Occupational Analysis and Curriculum Development
Description: Analysis of occupational job activities; development of course objectives, course outlines, and specific instructional materials for occupational and technical courses. May not be used for degree credit with CTED 4343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5223 Program Planning for Workforce and Adult Educators
Description: Approaches to program planning designed around continuous improvement methods for problem solving, flow charting, budgeting, gaining program support, and research proven models applicable to workforce and adult education. Previously offered as OCED 5223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5232 Teaching Related Information
Description: Selection of job-related topics common to most workforce and adult education programs; procedures for incorporating those topics into the regular curriculum. Course previously offered as TIED 5232 and OCED 5232.
Credit hours: 2
Contact hours: Lecture: 2 Contact: 2
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5233 Advanced Instructional Procedures in Workforce and Adult Education
Description: Advanced methods and procedures for effective teaching and learning in workforce and adult education classrooms and laboratories. Teaching basic education and employment skills and the selection of job-related topics common to most occupations with procedures for incorporating those topics into the regular curriculum. Course previously offered as TIED 5233 and OCED 5233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5313 Overview of Workforce and Adult Education
Description: Organization of workforce and adult education including its history, principles and evolving social, political and economic forces influencing the field. Course previously offered as OAED 5313 and OCED 5313.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5333 Administration and Supervision of Workforce Education Programs
Description: Understanding and critically analyzing the quality of workforce education courses and the value they hold. Course previously offered as OAED 5333 and OCED 5333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5340 Special Problems in Workforce and Adult Education
Description: Directed independent study of special topics involving assigned readings, library research, field work or a combination of these. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours. Previously offered as OCED 5340.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 5353 Instructional Strategies for Adults
Description: An analysis and application of the various techniques and materials available to facilitate the learning process in workforce and adult education settings. Process of designing effective learning experiences, planning curriculum and developing competencies of the facilitators. Previously offered as HRAE 5253 and EDLE 5353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5423 Individualized Competency Based Instruction and Customized Training
Description: Principles, techniques, and technologies for creating and delivering individualized competency-based instruction and customized workplace training. Includes LAP systems and customizing for industry. Course previously offered as TIED 5443 and OCED 5423.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5443 Interpreting Research in Workforce and Adult Education
Description: Seminar on the methods of research, review, synthesis and interpretation with application to particular fields of workforce and adult education. Course previously offered as OAED 5443 and OCED 5443.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5683 Legal Issues in Career and Technical Education
Description: Overview of the law and the legal system, including how to perform legal research using library and internet resources, issues involving student organizations, intellectual property, and distance education. May not be used for degree credit with CTED 4683.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5703 Adult Learning in Diverse Settings
Description: The study of adult learning in diverse geographic and cultural settings. Interaction with experts in the field and reflection upon their experiences after returning from travel. Previously offered as HRAE 5703.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5720 Workshop
Description: Professional workshops of various topics and lengths. Each workshop designed to meet unique or special needs of individuals concerned with adult education and workplace learning. Previously offered as OCED 5720. Offered for variable credit, 1-3 credit hours, maximum of 10 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 5730 Special Topics in Adult Education
Description: The practice, theory and research related to a current topic in adult education. Previously offered as HRAE 5730. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 5733 Current Issues in Career and Technical Education
Description: Defining current issues, conducting action research and proposing possible solutions to current issues in CTED. Debating opposing views and giving logic and reasoning for each view. May not be used for degree credit with CTED 4673.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5833 Global Consulting
Description: The consulting process, including contract, entry, diagnosis, response, disengagement, closure and ethical considerations. The competencies of successful consultants and trainers in the international environment, including cultural adaptations of self and of training materials. Previously offered as HRAE 5833.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 5880 Internship in Workforce and Adult Education
Description: Supervised experience working in business, industry, human service, or education settings. Previously offered as OCED 5880. Offered for variable credit, 3-6 credit hours, maximum of 6 credit hours.
Credit hours: 3-6
Contact hours: Contact: 3-6 Other: 3-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 5910 Developing and Analyzing Teaching Content
Description: Provides opportunity for experienced teachers to incorporate the latest workforce and adult education methodology, strategy, and/or technology into their course of study. Previously offered as OCED 5910. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 6000 Doctoral Dissertation
Description: Required of all candidates for the Doctor of Philosophy degree. Credit is given upon completion of the dissertation. Previously offered as OCED 6000. Offered for variable credit, 1-25 credit hours, maximum of 25 credit hours.
Credit hours: 1-25
Contact hours: Contact: 1-25 Other: 1-25
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 6103 Philosophy of Workforce and Adult Education
Description: Alternative perspectives for developing a philosophic position in workforce and adult education. Course previously offered as OAED 6103 and OCED 6103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6110 Graduate Reading in Workforce and Adult Education
Description: Supervised readings of significant literature not included in regularly scheduled courses. Previously offered as OCED 6110. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Contact: 1-6 Other: 1-6
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 6113 Supervision of Workforce Education Instruction
Description: Theoretical and practical application of current instructional supervision in workforce education setting. Strategies for effective supervision are learned through practice in analyzing teacher instruction for provisional and standard certifications and for industry certified instructors. Course previously offered as OAED 6113 and OCED 6113.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6123 Foundations of Lifelong Learning
Description: The definitions, historical and philosophical development, and the scope and function of lifelong learning. Previously offered as HRAE 6103.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6213 Lifelong Learning and Performance
Description: Lifelong learning theory within the context of applications in formal and informal settings in the community as well as in the workplace. Synthesis of research findings on changes of cognitive performance due to aging and analysis of recent literature on participation in adult education and training. Previously offered as OAED 6213 and HRAE 6213.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6223 Current Research in Adult Education
Description: Analysis of the major research trends in the field of adult education. Recent research studies in the field. Previously offered as HRAE 6223.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6233 Managing Knowledge in Learning Organizations
Description: Analyze the knowledge management concepts of informal learning, communities of practice, knowledge/learning transfer, organizational learning, and knowledge creation in learning organizations and workplaces. Conduct self-directed research projects on course-related topics and develop a conceptual map of learning concepts. Previously offered as OCED 6233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6253 Critical Issues in Adult Education
Description: Exploration of current issues of concern to adult educators from diverse settings. Previously offered as HRAE 6233.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6330 Special Topics in Adult Education
Description: Analysis and critique of the application of adult learning principles and methods in one of the numerous diverse settings in which adult education is practiced. Previously offered as HRAE 6330. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.
Credit hours: 1-3
Contact hours: Contact: 1-3 Other: 1-3
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation

WAED 6333 Strategic Planning in Workplace Learning and Organizational Performance
Description: Theory, trends, and competency model development performance areas. Course previously offered as OAED 6333 and OCED 6333.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6343 Financing Workforce and Adult Education
Description: Development of conceptual and legal bases for funding public workforce and adult education programs. Sources of funds, distribution strategies, local, state and federal accountability requirements, and fraud and abuse funds. Previously offered as OCED 6343.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6353 Future of Technology, Work and Society
Description: Complex interrelationships among emerging and future technologies, human society, and the definition and evolution of work in a global society. Traditional and emerging theoretical frames for technology and the future. Previously offered as OCED 6353.
Credit hours: 3
Contact hours: Lecture: 3 Contact: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Educ Found Leadersh & Aviation

WAED 6880 Doctoral Internship in Workforce and Adult Education
Description: Directed field experiences related to the participant's area of concentration. Practice and testing ideas, theories and concepts learned in graduate study. Previously offered as OCED 6880. Offered for variable credit, 1-8 credit hours, maximum of 8 credit hours.
Credit hours: 1-8
Contact hours: Contact: 1-8 Other: 1-8
Levels: Graduate
Schedule types: Independent Study
Department/School: Educ Found Leadersh & Aviation